

# THE AMERICAN BEE JOURNAL

Devoted Exclusively to Bee Culture.

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## Editor's Table.

☞ Those who have never used comb foundation should try it, and surprise themselves with the result. It is very valuable in building up swarms, nuclei, etc.

☞ A member of Congress has introduced a bill to levy a direct tax on oleomargarine of 10 cents per lb. It would be better to put glucose with it; but better still to pass a general law against all adulterations. The former can neither pass nor be enforced; the latter could be enforced if passed, and should become a law without delay.

☞ This will be a busy month with bee-keepers if the weather is favorable. Build up the colonies and keep them strong, so as to be able to take care of the flow of honey when it comes. Get the hives ready in good season for swarms. Do not wait till needed before ordering hives, boxes, etc. Have them on hand *before* needed, and thus save much perplexity.

☞ Mr. Frank Benton, who has now arrived in the Island of Cyprus, writes under date of March 16, that Mr. Jones, himself and his wife, arrived there about ten days previously, and had already purchased 100 colonies of Cyprian bees with which to start their apiary for rearing Cyprian queens. We shall anxiously watch the progress of events in that line, and keep our readers posted in reference to the results.



### More Queen Cages.

Since our last issue we have received the following, with accompanying cage :

Bristol, Vt., April 9, 1880.

I send you my new shipping and introducing cage combined, which I completed yesterday. They can be used with candy and water, honey and candy, or honey alone. Will they fill the bill ? A. E. MANUM.

It is a square block, having a round hole in it, very much like those used for the past 2 or 3 years; a piece of wire cloth over this hole sinks into the hole  $\frac{1}{4}$  inch, then another piece of wire cloth passes over it and down around the four sides, fastened with small staples. A little piece of sponge is placed in a groove at one side for water or honey. Candy can be poured into the bottom. The wire cap is intended for introducing. Water and honey are unmailable articles, and cannot, therefore, be used when sending queens by mail; otherwise, we think this cage comes within the requirements of the law.

Columbus, Ind., April 12, 1880.

EDITOR JOURNAL: I send you another queen shipping cage, *improved*. It has 2 perforated tins  $\frac{1}{4}$  inch apart. The top one is bent down over the 4 air holes. In the April JOURNAL you seemed to think my cage a good one, with the exception that it did not have the double screen. The one I send to-day I think fills the law to the letter. JOSEPH M. BROOKS.

Yes, it does; and it is a good cage, too. We are glad to notice a disposition to adhere both to the spirit and letter of the law in this matter.

Smithsburg, Md., April 9, 1880.

I send you, by accompanying mail, a sample of queen cage which cannot fail to fill the bill or answer every requirement of the ruling of the Postmaster General on the subject of cages for shipping queens. The cage should be bored with larger bits, but owing to my want of them was obliged to use the ones in my possession; however, you can form a clear idea from the sample. The hole at the side should be supplied with a cork, to allow the easy insertion of queens, but should be covered with wire cloth at a place which affords more conveniences for the operation than at the hive. Please give your opinion of it in the JOURNAL. D. A. PIKE.

It is a good cage, and is "according to law."

Wenham, Mass., April 17, 1880.

I send sample of the queen shipping cage, made as I suppose we must use them this

season. It is the same as I have been using for 13 years, with the exception of the small pieces of wire cloth over the holes in the cover. I also send another which is proof against all damage. H. ALLEY.

It is an excellent cage, strong and fully up to the requirements of the postal law, with its double wire screens, dry food, etc.

Alderly, Wis., April 15, 1880.

I send you by to-day's mail a queen cage, which I think will meet all the requirements of the law. Please examine and pass judgment upon it. RICHARD HYDE.

This is a square block with a hole in the centre for the bees and queen. On each of the four sides is a hole clear through; the sides being  $\frac{1}{4}$  of an inch thick, and covered with wire cloth inside and out. It completely answers the requirements of the law.

Mount Joy, Pa., April 20, 1880.

I send you my queen mailing cage to hold 2 queens. It can be made to hold any number, from 1 to 6 in one block; 2 queens will go for 2 cents. Is it according to the regulation of the Postmaster General ?

J. F. HERSHEY.

It is; but we should prefer it to be a little larger, even if it did cost another cent to carry it. It is an ordinary hole in a block with two pieces of wire cloth  $\frac{1}{4}$  of an inch apart.

Carlisle, Iowa, April 19, 1880.

I send you a sample of my cage for mailing queens. I have used such for two years before the Postmaster General prohibited bees passing through the mails, and it has always proved a success. I have sent queens as far as Colorado (about 1,200 miles), and have never lost a single queen. Heretofore I have used only a single wire cloth, but by putting on a strip  $\frac{1}{4}$  inch thick and using another wire cloth on that, makes a double screen cage. The  $\frac{1}{2}$  inch hole in one corner is for candy, which the bees can easily get at and without any danger of getting daubed. To make this cage, use  $1\frac{1}{4}$  inch lumber, and then not bore quite through, so that all the extra piece you have to use is the top  $\frac{1}{4}$  inch thick. The entrance at the side is stopped by a cork, which makes it secure. All are at perfect liberty to use it. J. E. HASTINGS.

It is nicely made, quite durable, and answers the law to a dot.

We have also received Peet's combination cage improved, so as to conform to the law, having a double wire screen. It contains a tin tube for water; but as liquids are unmailable, it is probably to be used when sent by express.

### Wax Adulterations.

EDITOR BEE JOURNAL: Please give some simple test to apply to comb foundation to ascertain if the wax is pure.  
J. CRAWFORD.

The "United States Dispensatory" gives the following tests for detecting adulterations of beeswax:

"To detect paraffine in wax, heat it with fuming sulphuric acid, which destroys the wax, converting it into a black, jelly-like mass, while the paraffine is left as a transparent layer on the surface."—*American Jour. of Pharm.*, xxxiv., 35.

"M. Dullo treats the adulterated wax with ether. If this dissolves more than 50 per cent. the presence of paraffine is indicated."

The "National Dispensatory" gives the following tests:

"The admixture of fats may be detected by the acrid odor of the vapors given off, on throwing the suspected wax upon red-hot charcoal."

"Adulterations with flour, white lead and similar substances are readily detected by their insolubility in ether and oil of turpentine, and by subsiding or mixing with hot water on fusing the wax with it."

The Central Michigan Convention was held at Lansing on the 15th ult. It was a large and enthusiastic meeting. Papers were read as follows: By Geo. L. Perry, on "Comb Foundation;" by Stephen P. Perry, on "Water for Bees;" by President Ashworth, on "Breeding Queens;" by Professor A. J. Cook, on "Some Curious Honey Gatherers of Colorado." The experience in wintering was generally favorable. None had lost except a few who had fed their bees on glucose. One member had lost 40 colonies, which he attributed to this cause. Among the topics discussed were "Spring Dwindling," "Dollar Queens," "Queen Rearing," "Putting up Honey," etc. The following officers were elected: President, W. J. Ashworth; Secretary, George L. Perry; Treasurer, Mrs. L. B. Baker. The next session will be held at Lansing on the first Thursday of October. The official report will appear in our next issue.

The Rev. James W. Shearer, a vigorous and pleasant apicultural writer and speaker, was bereaved on the 10th ult. by the loss of his affectionate wife. We sympathize with him in this affliction.

Mr. J. Beyer, Butlerville, Ind., has sent us a sample of his Italians. They are very fine and well marked; they were chilled by the cold weather while coming in the mails.

A swarm is reported by Mr. D. S. Haines, of Edwardsville, Kan., from an Italian colony on April 23; it settled near by, and was hived and went to work at once. He says: "It is the earliest swarm I ever knew in this latitude; my bees have been gathering much from fruit bloom, which will account for it, perhaps." Several earlier ones are reported even further north than that this year, where the weather was propitious and the colonies had been breeding largely and were very strong.

We have received several numbers of the "Humboldt Library," being a reprint of the popular expositions of science by the foremost writers of the time, in cheap form. Each number is complete in itself, and contains from 32 to 48 pages, as may be required to give the complete copy of the author. The price (15 cents for any number) brings it within the reach of all. The works here republished in a year would cost \$30 or \$40, while, in this cheap form, they will cost but \$3. They can be obtained of any newsdealer or of the publishers, J. Fitzgerald & Co., 294 Broadway, New York.

CATALOGUES OF SUPPLIES.—In addition to those already enumerated, we have received circulars and price lists from the following dealers:

I. S. Crowfoot, Hartford, Wis.  
 W. R. Field, Richland, N. Y.  
 S. P. Blomiley & Co., La Grange, Wis.  
 Charles Olm, Fond du Lac, Wis.  
 L. H. Pammel, Jr., La Crosse, Wis.  
 Henry Alley, Wenham, Mass.  
 Scovell & Anderson, Columbus, Kan.  
 S. Valentine, Double Pipe Creek, Md.



### Cheek and Assurance.

On April 12th we received an envelope addressed to us, but containing not a word or line except the following:

#### A Card.

To Messrs. Bingham, Clute, Doolittle and others:

In the AMERICAN BEE JOURNAL for April 1 notice you make several base charges, which not only cast unprincipled reflections upon the characters of some of America's most eminent and distinguished apiarists, but denounce with ridicule and scorn the proceedings of one of the oldest and largest associations on this continent. I brand these charges as *premeditated misrepresentations*, as unqualified as they are inconsistent. In behalf of the Committee on Implements, permit me to say that not only are the names of those gentlemen far above reproach, but they are well known as men of honesty, ability, large experience, unbiased and disinterested, and I dare say passed upon the articles in accordance with their true merits. As I am demanded to prove my charges or make a public apology, I wish to say: As my former communications have been suppressed and mutilated, I demand that you select and name a journal that will publish my reply in its entirety, and I will guarantee to prove all charges made by me to the satisfaction of the public, and I will endeavor to be as gentlemanly in my references as is consistent with my position. Inasmuch as you have held me up to ridicule and scorn, I claim the right to have *this* published, as well as the paper entitled "Past Events."

GEORGE W. HOUSE.

Fayetteville, N. Y., April 9, 1880.

It will be noticed that, in the above, it is *demanded* of the gentlemen named (not of us) to have the "Card," &c., published; as neither of them have anything to do with the management of a paper, this is really amusing.

In the light of the fact that the BEE JOURNAL has *never* received more than ONE communication from the writer of the above "Card," and that *one* was refused because of its abusive spirit, his charges of "mutilating" and "suppressing" his articles, are supremely ridiculous! Let us hope that age and experience will teach him to be more accurate in his statements and courteous in his remarks.

At the Utica Convention the writer of the above "Card" publicly intimated that articles sent to the BEE JOURNAL, were submitted to "Bingham, Clute, Doolittle & Co.," and unless approved by them were not allowed to appear in the JOURNAL. Knowing the statement to be wholly and absolutely untrue, we wrote to each of the persons named, asking if any articles intended for the BEE JOURNAL had ever been

submitted for their approval or disapproval. They severally replied in the following very explicit language:

Mr. Bingham said: "I have never been so honored or thus consulted."

Mr. Doolittle said: "I have never seen even one such communication before publication."

Mr. Clute said: "I affirm most fully and positively, that nothing was ever sent to me from the office of the AMERICAN BEE JOURNAL, or from any person who has any connection with that office, either directly or indirectly for my approval or disapproval. My advice has never been asked or given, as to the articles which should appear in the JOURNAL, nor as to the method and spirit in which it should be conducted."

For thus daring to state the facts in the case, the above "Card" insults them with such epithets as "base charges," "unprincipled reflections," "premeditated misrepresentations," "ridicule" and "scorn"!

These gentlemen were not at all interested in the controversy, and their names were maliciously dragged into it, by the assailant, without pretext or reason. Their denials of the charges were gentlemanly, courteous and positive; and given wholly in the interest of truth and right, with no sinister motive. Now to insult them with the offensive language used in the above "Card," is contemptible in the extreme, and exhibits the disposition of the writer as well as betrays the desperate cause he has espoused.

As nothing can be gained by a prolongation of a controversy conducted in such a disgusting manner, we shall dismiss it for the present, unless new points are developed. It is entirely useless to allow any one to cover another with "filth" or "dirt," simply for the *fun* of seeing how dexterously it can be cleaned off.

☞ Bingham still has a "corner" on smokers.

☞ A great many of the co-operative associations in England and Scotland have been compelled to give up business on account of lack of business capacity in the members.—*Cin. Grange Bulletin*.

☞ We are prepared to supply all new subscribers with the numbers from January when it is so desired.

☞ The Northeastern Wisconsin Convention will meet at Waupun, Fond du Lac Co., Wis., on Tuesday and Wednesday, May 4th and 5th. Interesting papers, by prominent bee-keepers, will be read.

FRANCES DUNHAM, Sec'y, Depere, Wis.



### Harris' Gem Hive.

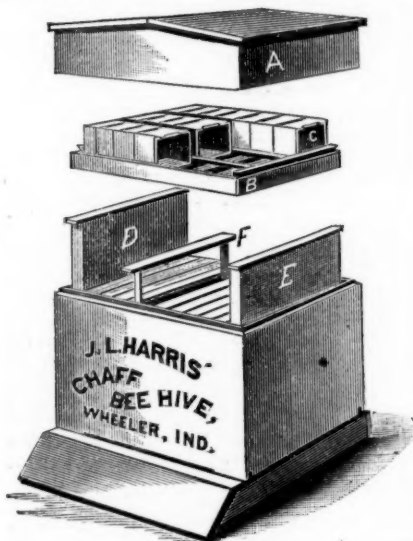
This is another addition to our Museum. It uses the same sized frames as Oatman's Modest Hive. Mr. Harris gives the following description of it:

The brood frames (F) are nearly square, the top bar being  $13\frac{1}{2}$  inches long; end bars,  $10\frac{1}{2}$  inches, and the bottom bar,  $11\frac{1}{2}$  inches; making a frame  $12 \times 11$  inches outside.

The body of the hive is square, measuring  $18\frac{1}{2} \times 18\frac{1}{2}$  inches outside.

At the front and back of the hive are reversible cases, closed on one side each with  $\frac{3}{4}$  inch boards; and top-mounted with metal rabbets. The same style of cases (E) are fitted in the ends of the hive, which are also reversible, and can be used to contract the brood chamber to any size desired.

The cases described above can be packed with chaff, straw or leaves, and the open side covered with burlaps, tacked around the edges; or the spaces can be left unfilled,





forming an air-space between the outer and inner walls of the hive. For wintering on summer stands, these inner cases may be turned, bringing the warm cushions next the bees. This forms an excellent absorbent of inside moisture, and also keeps the bees at an even temperature, being warm in winter and cool in summer. With this packed, double-wall arrangement, bees are not lured from the hive, to chill and die, with every comparatively mild day in winter; while in spring, a continuous spell of warm weather, of several days' duration, is required to entice the bees forth in the vain search for "fairer fields and pastures green."


Where extracted honey is the aim of the apiarist, the second story is made a duplicate of the lower story, holding 10 frames, and also provided with the inner wall.

The second story is omitted in *all* cases where comb honey is wanted. The cap (A) is the same in all, and racks are furnished (as in cut) to hold any sized box or section desired; but will be made for  $21\frac{1}{4} \times 4\frac{1}{4}$  unless ordered otherwise.


If comb honey in prize boxes ( $5\frac{1}{4} \times 6\frac{1}{4}$ , or 2 lb. sections) be desired, the second story is omitted, and in its stead a rack holding 14 boxes, with an 8 inch cover (A) can be used. These racks are provided with bottom strips, made of split-basker stuff, just the width of the sections, which serve admirably to keep the sections clean, and prevent much annoyance from fastening down.

 Mons. J. Fiorini, an Italian queen breeder, who for several years has furnished Messrs. Dadant & Son with queens from Italy, went to the Island of Cyprus last November. He spent two months there studying the habits of the native bees, and, having procured 8 colonies, returned with them to Northern Italy. He found much difficulty in obtaining them, on account of the superstition of the natives; they think that if they sell any bees to foreigners that all the rest of their bees will leave of their own accord, with the colonies sold.

 Mr. John R. Lee, Vice President of the National Association for Alabama has removed to Arkansas, and recommends the appointment of Mr. J. A. Austin, of Huntsville, Ala., as his successor. He is, therefore, duly appointed, and will enter upon the duties of that office at once.

 Mons. Dennler, in the Alsatian *Bienen Zuechter* says that to prevent his sugar syrup, made for feeding the bees, from granulating, he adds half a teaspoonful of cream of tartar or glycerine to every 2 lbs. of the sugar syrup.

"Our Apiary" is the title of a new paper started by Johnson & Homrighous. It is a monthly of 16 pages, and costs 50 cts. a year. It is a mixture of agriculture, apiculture, and religious enthusiasm. Its appearance is quite creditable.

 The Rev. M. Mahin has removed from Logansport to Huntingdon, Ind.



### Bee Notes from California.

The *Semi-Tropic* has the following items of intelligence concerning bees in California:

We have placed our estimation of the loss of bees (up to willow bloom) this season at three-fourths; leaving one-fourth out of what there was last season to commence work this season. We regard this estimate rather low, if out of the way at all; many have lost all, while a large majority have lost from 50 to 75 per cent.

Capt. Gordon, of the Arusa, informs us that the mortality among his bees has been fearful; 200 colonies have passed in their checks.

Mr. H. D. McGeorge, who resides about 40 miles west of Los Angeles, on the coast, informs us that wild bees are quite numerous in the woods and rocks in his vicinity, and that he will capture from 100 to 150 colonies this season. Mr. B. Franklin, an apiarist in the Cahuenga mountains, will leave in a few days to assist him.

**Albino Bees.**—Mr. S. Valentine, of Double Pipe Creek, Md., has sent us by mail some of his albino bees. They were received in good condition, and were very bright and fine. The following is his description of them: The difference between them and pure Italians as to marking is very striking; about the eyes they approach nearer a purple than that of the Italian; beginning at the waist they have three distinct yellow bands, then three distinct white bands—the white is pure, not muddy and dirty; the wings are finer, and of a bright, silver color.

☞ The price of tin has advanced so much of late that the manufacturers of many extractors have been obliged to advance the prices of them. See revised prices on page 255 of this issue.

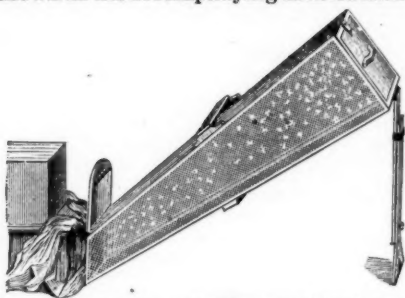
☞ The immense number of inventions and improvements patented in this country has astonished our English cousins. The following satire is copied from *London Punch*: "A Yankee baby will crawl out of his cradle, take a survey of it, invent an improvement, and apply for a patent before he is 6 months old."

**A Honey King.**—The *Montreal Witness* says: "The other day we had a call from a Butter King, and Thursday Mr. Valiquet, of St. Hilaire, who is deserving of the title of the Honey King of this province paid us a visit. He has written several articles on the subject of bees and honey which deserve the attention of our apiarists and those whose inclinations favor bee culture, which, although by no means general in this province, if conducted with skill, is very profitable. Some samples of honey brought in by Mr. Valiquet (one being 9 lbs. of granulated honey which he was about to present to a prominent retail grocery house) were the finest we have ever seen. This sample was firm, and could be cut like cheese; he says only few localities can produce honey so good, as it requires cane sugar, such as is extracted from basswood by the bees. This sample, he said, was purely ripe. Some honey, when extracted, contains as much as 20 per cent. of water, but if purely ripe it contains only from 5 to 7 per cent. Mr. Valiquet also showed a sample of comb honey of the same kind, the product of a hive—76 lbs. It was put up by the bees in a box with sections. He had some boxes of sections that weighed as much as 130 lbs. put up in marketable form. A third box of honey shown was the result of a hive of Italian bees which he had wintered. The colony had been allowed to give off one swarm, which, when put in a new hive, produced 81 lbs. of first-class white honey, and 18 lbs. of an inferior quality, making altogether 99 lbs., all put up in a box of sections. The parent hive produced 80 lbs. of extracted honey of the first quality. This is considered a large yield; other hives averaged 65 lbs. The advantage of the section boxes are that the sections can be removed from the hive at any time without interfering with the bees, and taken to market in less bulk than under the old plan, there being less weight of wood and glass to carry. Last season the honey crop in Europe and different parts of the United States failed. In Canada, however, the crop was considered very good. While the clover, the chief pasturage of the bees, did not yield much, however the basswood, which abounds in Canada, supplied the want, and we had a crop of good quality as a result."

☞ A convention in the interest of bee keepers is to be held during this month in Salt Lake City, Utah. Bee keepers in Utah can find out more about it by writing to the *Utah Farmer*, published at Salt Lake City.

### Bailey's Swarm Catcher.

Mr. J. W. Bailey, of Ripon, Wis., has obtained a patent on the swarm catcher shown in the accompanying illustration.



All will see at a glance its object and uses. It can be seen at our Museum, by all who wish to examine it.

☞ We are mailing a large number of copies of the JOURNAL to Great Britain and other countries of Europe, and it is very seldom that a number is lost in the mails, as the addresses are all printed. Should any, however, be lost, we always cheerfully send duplicates, when notified of the fact. We have just been informed of one lost through the carelessness of a postal clerk, who had taken the BEE JOURNAL from the wrapper and failed to return it, after examination—the empty wrapper alone reaching its destination. We think we are safe in saying that not 1 in 500 copies fail to reach their proper destination promptly. Our subscribers in any country need have no fears about losing any numbers. Should one not come to hand within a week of its regular time they should notify us, and another will be sent at once.

☞ Mr. J. Stewart, Rock City, Ill., writes: "Would it not be best to print in the BEE JOURNAL the addresses of the Secretaries of each Bee-Keepers' Association? We often desire to correspond with the different associations, but can rarely find the address of the Secretaries." This point is well taken, and we will in future incorporate this in our convention directory.

**Sensible Advice.**—So much that is inconsistent is often found in agricultural papers on the subject of "who should keep bees," that we give the *Western Rural* credit for the following sensible talk on the subject:

"The *Western Rural* believes that bee keeping is a source of both pleasure and profit. With the new inventions that are now furnished the apiarist, much that was disagreeable about bee keeping has been obviated, and the business has become pleasant and remunerative. We would not, of course, advise every one to rush headlong into bee keeping. It is not every farm that is properly located for the business, and it is not every man who is fit for it. A little thought will naturally show the work of the apiarist to be a delicate one, requiring patience and the exercise of good sound judgment. The business requires constant study, too. The man who buys a colony of bees and thinks no more about the little workers, and does not care to learn their nature and habits, had better keep out of the business."

☞ The paper used on the BEE JOURNAL for the past few months was made expressly for it, but was not such as we ordered or wanted. At the time we felt under obligation to take it, as it had been made for us, but we have regretted it ever since. It lacks stiffness and body, and as soon as this lot is used up (about 3 numbers more) we shall procure paper more to our liking.

☞ Mr. T. F. Bingham has sent to our museum a smoker bellows, having one side cut away to show the working of the different parts, as he makes them for the present season. It is a regular museum of itself—simple, ingenious, original and perfect.

☞ Farmers should never be in a hurry to purchase from travelers. It will often save them money and law costs to address a letter to advertisers of implements, trees, seeds, etc., as advertisers generally have a reputation and capital at stake. The glib talker you may never see again; but if it takes your farm that note will have to be paid, whether you get rubbish, value or nothing. Deal direct with established and responsible persons, if possible.—*Farm Advocate.*



### The "Resolutions" Repudiated.

Since our last issue we have received a "shower" of letters from apiarists all over the United States, condemning the hasty and unjust action of the North-Eastern Convention. This spontaneous outburst of indignation we fully appreciate, but cannot now give space to all the letters. The following are fair samples of them all:

The N. E. B. K. Convention could hardly have done the AMERICAN BEE JOURNAL more good by lavishing praises, than they have by thus over-reaching themselves. It must be its editor's success they envy—but you are, in justice, fully entitled to all the honor which every honest and laudable work accomplishes.—A. E. WENZEL, *New York*.

The N. E. Convention was rather severe on the JOURNAL and its editor. That was but a one-sided trial, and judgment rendered in too much haste. The last JOURNAL sums up the evidence in such a clear and strong manner, that it must sit quite snugly on the assailants.—A. SNYDER, *New York*.

FRIEND NEWMAN: I do not indorse the resolutions passed at the Northeastern Bee-Keepers' Convention. I was one of the first to vote for you for President of the National Bee-Keepers' Association, when held in New York. I think you have nobly and honorably filled the position, besides giving to us a publication well worthy the name of THE AMERICAN BEE JOURNAL, and I believe you intend to be fair in giving all a hearing through your columns.—C. R. ISHAM, *New York*.

I like the BEE JOURNAL very much, and shall let them co-operate their journal by themselves; the old one is good enough for me.—S. E. TUBBS, *New York*.

I would like to know how some of the N. E. Convention folks like their appearance, now that their masks are off?—D., *N. York*.

DEAR EDITOR: Allow us to extend "the right hand of fellowship," for so ably answering the charges made at our Northeastern Convention.—BENEDICT & NEWMAN, *New York*.

I have read with interest all the bee papers for April. I think that the North-eastern Convention could not have taken a more effectual method of killing the "co-operative" idea. They have not injured the BEE JOURNAL a particle.—F., *Wisconsin*.

The AMERICAN BEE JOURNAL is just at hand. I notice the trouble just broken out, and I do not like it. I like all the four bee papers, and take them all. I have been in the JOURNAL office but twice; the first time in Oct., 1878, and last Oct. During my first visit, I remember very distinctly Mr. Newman's stating that honey producers scattered their shipments too much, and the low price it caused honey to bring. After talking awhile with Mr. Newman, I went down to Water street, and priced the honey I saw there. At one place it was 25c. per lb., another 30c., next 20c., next 18c., and so on. I

found nice white comb honey offered as low as 10c. per lb. I had forgotten about all this, till the fuss now raised brought it to my mind. I do not think the editor of the JOURNAL wished the price of honey put down, or he would not have spoken to me as he did, and I thank him for it, although I am no shipper; I can not supply the demand I have created at home. I learned much of value while at the JOURNAL office.—W. J. WILLARD, *Illinois*.

I notice that you have a north-easterly blast, but storms from that direction, though they may be disagreeable and long, seldom do much damage. I do not think that little squall will hurt you. I like the BEE JOURNAL much.—E. B. SOUTHWICK, *Michigan*.

I hardly think the Secretary of the N. E. B. K. Association merited so much attention as was shown him in the last JOURNAL. He is quite young, almost "too smart" for one of his age, and has very limited experience.—H., *Massachusetts*.

The Northeastern Convention is quite rough on the BEE JOURNAL. Have the members of that society forgotten the rule laid down long ago: "Let him that is without fault cast the first stone"? When they are faultless let them throw the first stone at the BEE JOURNAL—but not until then.—E. PICKUP, *Illinois*.

I wonder how the co-operative men feel now in their real clothing. Their "light in the East" is now about defunct. The last issue put a grand quietus on it; again the sea is calm. I have a number of letters showing how bee men feel about their late attack on the AMERICAN BEE JOURNAL.—J., *Michigan*.

MR. NEWMAN: Those resolutions against you for dealing in supplies for the apiary are unjust. They may as well resolve that commission merchants shall buy no honey except from them. Their intimation that you wanted to be re-elected President is as false as their statement that "the Chicago Convention was run by a ring;" you stated to the Convention that you wanted some other good man to take the Presidency. Bee-keepers have confidence in you, and as long as they find you honest they will buy supplies from you; and no one will object but the unreasonable and the prejudiced.—L. H. PAMMEL, *Wisconsin*.

The Utica Convention needs only to be viewed away from the scene, to be loathed. They have made a bad exhibit, and it will do the AMERICAN BEE JOURNAL more good than all the laudations they could have bestowed. If it is desirable to co-operate, why not co-operate bee-keepers' supplies as well as bee papers?—T., *Michigan*.

Any one carefully reading the various bee publications the past 5 years will have little difficulty in finding which among them is devoted to the interests of producers (the Northeastern Bee-Keepers' Association to the contrary notwithstanding), and when they will produce a better journal for our consideration, we shall cheerfully give them our support. But the "old and reliable" AMERICAN BEE JOURNAL is too firmly



fixed in the affections of the fraternity to be shaken by such vague, unfounded assertions, and any attempt to found a new publication on such flimsy pretexts, when so many are already in the field, will most assuredly fail. No, no, gentlemen; what we want is **BETTER** magazines, *not more of them!* It was, doubtless, exceedingly kind of the gentlemen to inform us of the danger; but, somehow, we fail to appreciate the favor, and think we will "jog along" *with the AMERICAN BEE JOURNAL for the rest of the year, at all events!*—C. S. BURT, *Ohio.*

The following from our contemporaries will show how they view the matter:

**Mr. A. J. KING, in Bee-Keepers' Magazine, New York, says:**

The cause of truth, and a desire to do as we would be done by under similar circumstances, compel us to observe:

1st. We have already expressed ourself regarding the National Convention at Chicago, and see no reasons for modifying those expressions.

2d. Regarding that Convention being run by a *ring*, we will say that we have heard from most, if not all of the men whose names occur in the report of the National Convention, as composing this "ring," and all deny sustaining any such relation to the National Association; and as they are men of acknowledged honesty, we feel bound to accept their statements.

This Convention was one of the largest ever held on this continent, yet Eastern bee-keepers were scarcely represented at all, but when the same Association convened in this city, the West was well represented. So, if the Chicago Convention "smacked" somewhat largely of Western ideas and interests, we have little room for fault-finding.

In regard to Mr. N. representing American bee-keepers abroad.... As he paid his own way and consumed his time without recompense from the American Association, it is but natural to suppose that he would exhibit and press the sale of such books and implements as he was most interested in, and in this we cannot blame him.

**Mr. A. G. HILL, in Bee-Keepers' Guide, Kendallville, Indiana, says:**

Nearly one-half of the proceedings of the Northeastern Convention were devoted to condemning the present bee publications, and especially the editor of the **AMERICAN BEE JOURNAL**. He, like all the other editors, deals in apiarian supplies, and the Convention concluded that no one can be honest and sell bee-supplies. There is one difficulty in the way of immediately starting their new paper. An editor cannot live on the support of a convention, or resolutions, and it would be impossible for such a paper to pay expenses unless the editor had some other business in connection with it.

**Mr. J. H. NELLIS, Editor Bee-Keepers' Exchange, Canajoharie, New York, says:**

Your reply to House, Detwiler, Betsinger and others, whose accusations appear in the report of the Northeastern Bee-Keepers' Association, meets my hearty endorsement. I

did not support the position taken by those gentlemen, nor did I vote for the resolutions. I would much rather not have published them, but as my report was to be an "official" one, I dared not "mutilate," lest I get my "neck in the sling."

I was very loth to publish it, for the reason that I prefer to keep altogether clear of quarrels, which always result in loss to *all the parties participating*. If you desire it, I will publish your reply, and will effectually close my columns to all further matter bearing on this subject.

You are free to publish this in the **AMERICAN BEE JOURNAL**, if you desire. I am, as heretofore, your friend, J. H. NELLIS.

**Duty on Bees.**—Please answer the following through the **BEE JOURNAL**: Is any duty demanded on queens imported from Italy? If any, how much? If no duty is required, why cannot they be sent by mail? I wintered 12 colonies without loss. All are doing well.

G. A. MCCARTHEY.

There is no duty on bees sent to this country for breeding purposes. They can be sent by mail, but the long and close confinement in a huge pile of mail bags may cause much loss—perhaps too much to make it profitable to send in that way.

☞ The proposition to put an import duty on honey in France has failed. That leaves that market open to us, as heretofore.

☞ A Canajoharie, N. Y., paper gives nearly a column to a description of Mr. Nellis' new factory, and the details of his business. We wish the enterprise success.

☞ Poor health has induced Mr. Jas. Heddon to transfer his "supply" trade to H. A. Burch & Co. for this season. He will supply his local trade, and fill all orders sent him for full colonies of bees, but nothing more.

☞ We have received from the publishing house of Jules Caye, of Paris, a new book on the "Theory and Practice of Movable Frames in Apiculture," by T. Sourbe, edited by A. Quantin. It is an octavo volume, illustrated. Price 3 francs. To us the subject is well understood, but in France movable frame hives are but little known or used.



## Correspondence.

For the American Bee Journal.

### The Prospect for a Honey Harvest.

J. N. M'COLM.

My bees have come through the winter in fair condition, but my prediction is that Wisconsin will have no honey to brag of this year. The last three months have been a continual freezing and thawing; the result is that our clover and dandelion are practically used up, so that we will get but little benefit from them. And, as it is the off year for basswood bloom, you see that our chance is slim.

The first natural pollen made its appearance yesterday. We believe with Mr. Heddon, that the bee business is nearly overdone; at least, the "supply business." Nearly every mail brings us a "circular" from some "enthusiast," and if this thing continues we shall have a load of paper rags before the close of the year. Our prediction in regard to the latter subject is that one-half of the supply dealers will be driven out of the business in less than three years, from want of patronage. The production of honey will not sustain so many.

Plymouth, Wis., April 5, 1880.

[In Wisconsin and Northern Illinois we have heard that the clover has been injured—but the question is, to what extent? We should be glad to hear from bee-keepers on this point. Also, is it so in other localities? It does not appear to be injured around this city, though it is late in springing up.—ED.]

For the American Bee Journal.

### Do We Need More Bee Papers?

JOHN F. BEAN.

Bee-keepers in this section read with regret the unjust and uncalled for resolutions of the "Northeastern Bee-Keepers' Association." We were really pained to see such a spirit manifested by any one, and surprised to think that an association possessed of so much intelligence should be guilty of such an act of injustice, and that, too, without any foundation whatever.

We do not see why an editor of a bee journal should not deal in supplies; in fact we really think he ought to, because he is able to judge of the merits of

everything pertaining to bee culture. He also has a right, and we consider it a duty he owes to his readers, to devote a reasonable amount of space in advertising those supplies and in bringing before his readers everything that is new and valuable. We look to him to bring all valuable inventions to our notice; to criticise them in a just manner; and, if worthy, we are glad to know we can send our money to a responsible dealer and get due returns.

We are fully convinced that the columns of the AMERICAN BEE JOURNAL are open to all bee-keepers, and articles worthy of publication and of real interest to its readers, and not written in the interest of or through some selfish motive, receive due notice.

We neither desire nor do we need a co-operative bee journal. It would be impossible to run a journal on the plan proposed by our Eastern friends. May I be permitted to ask if it was not "selfishness" that prompted them to advocate a co-operative journal? We hope they will reconsider this matter, acknowledge to the world that they have acted unwisely, and make due amends for their hasty proceedings. One thing is certain: such resolutions instead of being an injury to the AMERICAN BEE JOURNAL will only build up its list of subscribers, and cause its many readers to stick to it closer than ever.

Allow me, before closing this, to say, we were truly glad to see the able manner in which the editor of the BEE JOURNAL treated the unjust accusations brought against him and the JOURNAL.

Mt Sterling, Ky., April 15, 1880.

For the American Bee Journal.

### Increase, After-Swarms, Etc.

JAMES HEDDON.

I have been somewhat edified lately in reading various methods of increasing stocks of bees. I have been led to the following conclusions by my experience:

So long as honey brings the figures it has commanded the past season, and bees their present price, it is to the advantage of most apiarists who produce honey for an income, to do all in their power, consistently, to prevent increase. So far as my experience goes, I must say that I know of no practical preventives except shade and plenty of room at all times. There are many other methods equally certain, but they are either injurious or too laborious and expensive to be practically successful. Well, if you do not want any increase, you will

not be apt to purposely make it, consequently what you have will be from natural swarming. By the way, I am not sure, all things considered, that the last named kind of increase is not the most preferable in any case.

I have practiced artificial increase in many different forms, and the following has proved the most successful in all kinds of seasons, and with all sorts of locations and bee-keepers, so far as I have been able to find out. Just before swarming time, induce your choicest blooded colonies to prepare to swarm naturally. This is done by seeing that fresh food is not neglected at any time, and by the addition of brood from other good colonies, and by heat and crowding.

This method will give you a lot of just such cells as you wish to procure queens from. Watch developments, and as you find cells ready (you may let the cell-rearing colonies notify you by swarming), divide your foremost colonies as follows: Remove all the top from your hive and place thereon the cap or a box, and drum the bees up into the same. When about one-half have gone up (the queen will be almost sure to be with them) set your box aside with its bees, then remove the old hive to the new stand, putting the new one (just like it) in its place, and run in the bees. Number each hive alike. You can look for the queen as you run them in, or not, as you please; as stated above, she will nearly always be there; but when she is not, the bees will soon notify you by "running," when you go to the old hive (now removed), and you can quite easily pick her out and put her where she belongs.

#### How to Prevent After-Swarms.

Modify the above process in this way: Instead of carrying the old hive away, face it the other way, and set it close by the new hive on the old stand. Every day after, turn it one-fifth the way back facing the old direction, and on the sixth day carry it away to a new stand. What few bees were flying again from the old hive are now added to the new colony, so what the old colony loses the new one gains. The old hive is to have one of the aforesaid queen-cells on the day of the division, just at night. Divide only when the bees are flying to the fields freely, and not later than 3 o'clock p.m.

The above method of artificial increase can be made to work with box hives just as well as any, and from box to frame hives, by throwing a piece of carpeting over the old hive before, and over the new hive after dividing, to make the deception complete.

The plan given to prevent after-swarms works just as well with natural

swarming as with artificial. It is not always a sure preventive, but there are hardly more exceptions than are required to prove a rule.

You see there is no removing frames to be done, consequently your work is straightforward and rapid. I know by experience that the plan works well, and I can see no good reason why it should not. The conditions are as near like those of natural swarming as well can be. With or without foundation, I will never put one frame of comb (with or without honey and brood) between empty ones, nor will I put one empty frame between full ones, unless the latter are chock-full of brood.

In the above hasty description of my favorite method of artificial increase (I do not use any now but the natural, which is forced upon me by the instinct of the bees and the flow of honey), I have no doubt omitted some points, and I know I have left out the minutiae, expecting that most readers of the *BEE JOURNAL* have experience enough to supply the details.

Now that I am out of the supply trade for this season, next month I will tell you what I know about "Supply Dealing."

#### A Card.

I take this occasion to return thanks to the writers of the several congratulatory letters I have received in reference to my article of last month, and the cause it advocates. While poor health and many cares prevent me from answering each separately, I feel most forcibly their great help to our cause, and the grand growth of good sense among the many honey producers who read the *AMERICAN BEE JOURNAL*.

Dowagiac, Mich., April 10, 1880.

For the American Bee Journal.

#### Wintering of Bees.

L. H. PAMMEL.

We have just passed a trying winter for bees, on account of the great changes in temperature. It is a question of interest to many, how to winter bees successfully. We can hardly find two bee-keepers who agree on this subject; some prefer wintering them in a cellar; others in a bee-house; and still others on the summer stands.

My experience gives me unbounded faith in wintering on summer stands. The bees will remain clean, and will not besmear their combs and hives, which always results in loss of colonies. I had a case of that kind during the past winter. I wintered some in a house, and



some on the summer stands. Upon examination, I found the latter clean and healthy, while some of those wintered in the bee-house "dwindled" badly; they had plenty of honey, but the combs were besmeared, and a foul odor came from them. They had occasional flights in good weather, but it did no good. I lost 2 out of 27 colonies; these were wintered in a bee-house. Others in this locality, who wintered in cellars, have lost one-third, not for want of honey, but the high temperature in January caused the queens to lay early. In February cold weather set in again, and the bees could not take care of all the brood. The bad odor that came from the besmeared combs and dead brood caused them to dwindle away. Whereas, if the hives and combs had been clean they would have emitted a sweet odor. Some may say that this would have been different had the bees been carried out of doors, but their disturbance would have produced the same results.

La Crosse, Wis., April 19, 1880.

For the American Bee Journal.

### The Latest from Cyprus.

D. A. JONES.

The natives here are usually poor, and, on account of the failure of the crops here last season, or from some other cause, they too closely robbed the bees of honey. The spring is very cold and late; thousands of colonies have starved. I believe three-fourths of the bees in Cyprus are dead, and I wonder that all are not, considering the lack of pasturage and care. If this weather continues much longer, very few will survive. The winter has been very severe both in Europe and Asia.

My carpenters have made 200 hives, and, by scouring every part of the island for bees, I hope to have 300 colonies by June.

Mr. Benton is busy transferring and bringing over the mountains 100 colonies I have 30 or 40 miles from here; and, as they have to be carried on the backs of mules and camels, up and down steep places, you can imagine the task—expensive as well as tedious.

To-morrow I leave for Palestine to examine the bees there, and bring 10 to 20 colonies of them back with me, if I find them to be good. I shall then select a variety of the different races of bees, and return to America with them in May. The bees here are kept in tubes about 30 inches long and 10 or 12 inches in diameter, varied according to the no-

tion of the natives. The honey here is dark and very strong, except some gathered up in the mountains from plants resembling our sage, which is of a light color and better flavor.

The Cyprian bees have large wings and great power of endurance, but do not venture out in the spring in unfavorable weather; but they breed early, and when stores are insufficient, I have found much brood dead for the want of proper nourishment; this may be the result of the lateness of the season here. I am feeding largely to prevent starvation and keep up brood rearing.

By October I hope to have a thousand queens in my different apiaries, and I expect to exhibit several races of bees at our National Convention at Cincinnati next fall. I will write you again from Palestine, and should you receive some queens direct from Palestine from me, you need not be surprised.

Island of Cyprus, March 27, 1880.

From the Prairie Farmer.

### Practical and Timely Work.

MRS. L. HARRISON.

All who desire to have profit, pleasure and a good time generally with their bees, should provide their fixtures before the busy season commences. Movable frame hives well made and painted are a desideratum. Every hive in the same apiary should be precisely alike, so that all parts are interchangeable. We know of nothing more aggravating than to find that a frame will not fit, when it contains honey, brood and bees, and we are in the act of removing it from one colony to another—poor time to stop and whittle. Hives should be made of good, well-seasoned lumber, by a competent workman (not thrown together by saw and hatchet men), and if kept well painted should last as long as a house. Some persons order hives from the manufactories when swarms are daily expected, and when they arrive the bees have to be transferred from salt barrels, tobacco buckets, etc., making a deal of work for their procrastination. We have known persons to go several miles to purchase a hive, leaving the bees clustered, and were surprised on their return to find that the bees had emigrated.

The best kind of box for the apiarist to use will depend in a great measure upon what his market demands. Pieces of white comb can be utilized to advantage in surplus boxes, and it encourages the bees to work in them sooner.

Peoria, Ill.



For the American Bee Journal.  
**Honey Plants of Northern Texas.**

DR. WM. R. HOWARD,  
 Secretary Texas Bee-Keepers' Association.

In offering this list of native honey plants, it will be necessary to consider many plants cultivated by farmers and planters, which furnish more or less honey and pollen; but before entering upon our subject fully, we will offer, here, a few remarks upon pollen, the fertilization of plants, the production of honey, etc.

Pollen is in appearance a small yellow dust contained in the cells of the anthers. When viewed with the microscope it appears as grains of various forms, usually spheroidal or oval, sometimes triangular or polyhedral, but always of the same form and appearance in the same species. Externally they are curiously and often elegantly figured, with stripes, bands, dots, checks, etc. Each grain of pollen is a membranous cell or sack containing a fluid; its coat is double, the outer is more thick and firm, exhibiting one or more breaks, where the inner coat, which is very thin and expansible, is uncovered. In the fluid are suspended molecules of inconceivable minuteness, said to possess a tremulous motion. When the membrane is exposed to moisture it swells and bursts, discharging its contents.

In some of the flowers under consideration in this text, the pollen grains do not separate into a dust or powder; they all cohere into masses, called *pollinia*, accompanied by a viscid fluid.

In flowers dependent upon insects for their fertilization, there is a copious deposit of starch provided in the receptacle and disc. At the opening of the flower, this is changed to sugar to aid in the rapid development of those delicate organs which have no chlorophyll, wherewith to assimilate their own food. The excess of sugar flows over in the form of nectar; which is taken up by the hairy tongue of the honey bee, and conveyed by the alimentary tube, to the proventriculus, or crop, where honey is elaborated by an unknown chemical process, and regurgitated into the honey cell. Many are of the opinion that the honey as taken from the flower, undergoes no change before it is deposited by the bee in the cell, and offer as argument, that it has been proven that syrups, etc., undergo no perceptible change in being transferred by the bee to the honey cells; and thus reason from analogy that no change can take place within the labora-

tory of the honey bee. Be this as it may, I will not stop to argue here, as it can be of but little practical importance to the apiarist.

This wise economy of nectar is seen in fertilization; for attracted by it, the insect enters the flower, rudely brushes the pollen from the now open anthers, and inevitably lodges some of its thousand grains upon the stigma.

Experiment has proved that in all cases of formation of sugar from starch, oxygen is absorbed and carbonic acid evolved—a process which we might expect, since starch ( $C^{12} H^{10} O^{10}$ ) contains proportionably more carbon than sugar ( $C^{12} H^{12} O^{12}$ ) contains. It is probable that these two phenomena in vegetation are always co-existent.

In the following list, the seasons must be considered, as when the spring opens early, the weather propitious, both pollen and honey will be gathered earlier, more abundant, and of better quality; while in late, cold and wet springs, there will be but little of either collected and that of inferior quality, making our swarming later. In 1879, our fruit trees were in full bloom the first of March, while now (March 1st) we have none in bloom, not even the wild plum.

Red elm (*ulmus*) furnishes an abundance of pollen, and of good quality, and commences to bloom early in January, with a succession of blossoms for about a month. Slippery elm blooms the last of February, furnishing a rich pollen for about two weeks.

Wild plum (*prunus*) is next to red elm, commencing early in February, about the time elm ceases; with a succession of about fifteen days, furnishes both honey and pollen; the honey, though of inferior quality is eagerly sought by the bees, new honey giving, as it were, new life and vigor to the whole colony.

Peach and pear commence to blossom about the first of March, giving a succession of about twenty days, connecting with the apple, which gives a succession of from ten to twenty days, owing to the varieties; late winter apples bloom several days later than the earlier varieties. Fruit trees generally yield a fair quality of both honey and pollen, the former, being sometimes somewhat bitter.

Judas tree or red bud (*cercis*) blooms from the first of March to the last of the month, furnishing principally honey, which is of good quality; early swarms are frequently thrown off from the abundance of this harvest.

Black haw (*viburnum*). This shrub or small tree blooms about the twentieth



of March, with a succession of blossoms for a month and sometimes more. Yields honey and pollen.

Ratan vine (*smilax*) blooms from the tenth of April to the last of the month; furnishing an inexhaustible quantity, and a very fair quality of honey. In localities where this vine abounds, our spring yield is from it, and our main swarming is thrown off from the abundance of this crop.

Black locust and honey locust (*robinia*) flower in March, commencing about the middle of the month, and giving a succession of flowers for rather more than twenty days; furnishing both honey and pollen of excellent quality.

Pepper-wood, angelica tree (*aralia spinosa*, Linn.) furnishes both honey and pollen; honey of inferior quality on account of its pungency. Blooms April twentieth, with a succession of fifteen to twenty days. It is visited mostly for its pollen, which is abundant.

Poison ivy (*rhus toxicodendron*) furnishes an abundance of pollen and some honey. Blooms in April throughout the month.

Milk weed (*anantherix convivens*, Feay), commences flowering early in May, with a succession of flowers up to the middle of June and sometimes later. It furnishes an abundance of honey, of an inferior quality, being strong and pungent. It yields no pollen; its pollen cohering in masses, called *pollinia*, are suspended by a thread-like beak, in the sides of the connate mass of anthers, which are 5-angled, truncate, opening by five longitudinal fissures, which when the flower opens and comes to maturity, release the *pollinia*, throwing them out, and being furnished with wings, so to speak, and a heavy viscid beak will scarcely escape the cup-like flower without coming in contact with the stigma. These pollen masses are of great inconvenience to the bees, as in visiting the flower for the nectar, their feet come in contact with these *pollinia*, and by the viscid fluid they become firmly attached; and in going from flower to flower every pair that touches, sticks. As soon as the viscid liquid dries, it becomes brittle and soon falls off. They do not kill the bees as asserted by some, but I am satisfied that bees are considerably disabled for the time being, by these unnatural and clumsy appendages, and I am of the opinion that bees do as well, or perhaps better without this plant; but where it is to be found, bees will invariably visit it, notwithstanding the deleterious consequences; but had it not been for this plant in some localities the past season,

many apiaries would have starved out; for it was an uncommonly dry year, and this was the only honey-plant we had.

Persimmon (*diospyros virginiana*) commences to bloom early in May, with a succession of flowers for rather more than a month, early varieties sometimes have half grown fruit, by the time the later varieties are in bloom. It affords an excellent quality of honey; in localities where there are a few acres of these trees, bees will become rich in stores in a very short time.

Black sumac (*Rhus*), commences to bloom about the first of June, with a succession of flowers for one month. White sumac ten to fifteen days later, both furnishing honey and pollen of fair quality.

Cotton plant (*gossypium herbaceum*), commencing to bloom about the 15th of June, with a succession of flowers till frost; furnishing both pollen and honey. The blossom expands its petals of rich creamy-white, about 10 o'clock a. m. As soon as the flower is open enough, the bees immediately visit it, gathering both pollen and honey; prior to the opening of the new flower, early in the morning the bees seek the flowers of the day before, which have closed, and are of a pale red color, diving down outside, at the base, and lapping up the delicious nectar, which is no longer necessary for the development of the floral organs. Bees gather more honey from this flower after it begins to close, say after 11 o'clock a. m., till 9 a. m. next day, than from the freshly opened flower; which furnishes mostly pollen. The honey from this plant is dark, like that of buckwheat, but of good flavor, very thick and granulating shortly after it is extracted.

Jamestown weed (*datura stramonium*), commonly called jimson, is visited late in the evening and very early in the morning, but the bee is unable to procure any honey except from the largest flowers. Several species of wild bees enter it, and some species gnaw into the flower at the base for the purpose of obtaining the abundant supply of nectar which this flower evolves.

Corn (*zea mays*, Linn.). The tassel of corn yields pollen early, and some honey later on. If the weather is favorable for the reproduction of plant-lice, we may always expect them to attack the tassel, making the top leaves "sticky" and discolored. I have seen bees "pile" on the tassel till you could scarcely have seen anything but the bees, gathering this "honey-dew." The honey thus obtained is dark, but of very fair flavor. A few remarks on the subject of honey-dew may not be out of place here

Honey-dew is very abundant on many plants, and is sought by the bees with great eagerness. Honey-dew for the most part furnishes rather an inferior honey, being dark and in some instances watery. There has been much cavil for years in regard to the origin of honey-dew. It has been known to entomologists and botanists since the time of Linnaeus, that the so-called honey-dew was mostly the ejections from the bodies of certain insects belonging to genus *Aphis*, to which plant-lice belong. The word *Aphis* is from a Greek word, which signifies to exhaust. The principal characteristics which distinguish these from other insects are as follows:

Their bodies are short, oval and soft, and are furnished at the hinder extremity with two little tubes, or pores, from which exude almost constantly minute drops of a fluid as sweet as honey; their heads are small, their beaks long and tubular, their eyes are globular, but they have not eyelets, their antennae are long and usually taper toward the extremity, and their legs are also long and very slender, and there are only two joints in their feet. Their upper are nearly twice as large as their lower wings, and much longer than the body—are gradually widened toward the extremity, and nearly triangular; they are almost vertical when at rest, and cover the body above like a sharp-ridged roof.

The winged plant-lice provide for a succession of their race by stocking the plants with eggs in the autumn. These are hatched in due time in the spring, and the young lice immediately begin to pump sap from the tender leaves and shoots, increase rapidly in size, and in a short time come to maturity. In this state, it is found that the brood without a single exception consists wholly of females which are wingless but are in a condition immediately to continue their kind. Their young, however, are not hatched from eggs, but are produced alive, and each female may be the mother of fifteen or twenty young lice in the course of a single day. The plant-lice of this second generation are also wingless females, which grow up and have their young in due time; and thus brood after brood is produced, even to the seventh or more, without the appearance or intervention throughout the whole season of a single male. This extraordinary kind of propagation ends in the autumn with the birth of a brood of males and females, which in due time acquire wings and pair; eggs are then laid by these females, and with the death of these winged indi-

viduals, which soon follows, the race becomes extinct for the season.

Plant-lice seem to love society, and often herd together in dense masses, each one remaining fixed to the plant by means of its long tubular beak; and they rarely change their places till they have exhausted the part first attacked. The attitudes and manners of these little creatures as described by Harris, whose words are used in the history and parthenogenesis above, are exceedingly amusing. "When disturbed, like restive horses, they begin to kick and sprawl in the most ludicrous manner. They may be seen at times, suspended by their beaks alone, and throwing up their legs as if in high frolic, but too much engaged in sucking to withdraw their beaks. As they take in great quantities of sap, they would soon become engorged if they did not get rid of the super-abundant fluid through the two little tubes or pores at the extremities of their bodies. When one of them gets running-over full, it seems to communicate its uneasy sensations, by a kind of animal magnetism to the whole flock, upon which they all with one accord, jerk upwards their bodies and eject a shower of honeyed fluid." The leaves and bark of plants much infested by these insects are often completely sprinkled over with drops of this sticky fluid, which, on drying, become dark-colored and greatly disfiguring the foliage. This appearance has been denominated "honey dew," but there is another production observable on plants after very dry weather, which has received the same name, and consists of extravasation or oozing of the sap from the leaves.

Horse-mint (*monarda*). This plant furnishes an excellent quality of honey, equal to white clover, finely flavored; it is the best honey-plant we have. It grows on all our prairies, stands the drought well, and comes in bloom just when our bees are in their working strength; it blooms rather after the middle of June, and gives a succession of flowers for one and a half months, or rather more than forty days. We all rejoice when our bees are safely through to the horse-mint. There are several species of this plant here which furnish more or less honey; the most valuable are *M. ciliata* and *M. punctata*. The first mentioned is nearly a month earlier in flowering, though both are valuable honey plants and deserve attention in the way of cultivation. I believe some of our apiarists are cultivating horse-mint for its honey qualities. It yields no pollen worth mentioning; the anthers project in a direct line with the upper



cleft of the flower, dusting its pollen grains over the body of the visiting bee. Too much cannot be said for horse-mint as a honey plant.

Pig-weed (*chenopodium album*, Linn.). This very common weed in fields and gardens, blooms about the first of August, and furnishes an excellent quality of pollen; unimportant as a honey plant.

Flax weed (*bigelovia virgata*, D C.), blooms about the first of August, but is not visited by bees till late in the season when other and better flowers are scarce; it blossoms till frost; the honey is bitter and pungent.

We have a plant of the genus *solidago*, or a closely allied genus of the *compositae*, which I have not had time to determine satisfactorily, which blooms in August and furnishes an inexhaustible quantity of honey until frost. There are hundreds of acres of this plant in this country, common in old vacant fields, waste places, etc. With a favorable fall, bees will get very rich from it. The honey is so pungent and fiery that no one can eat it; even the smallest portion of it will create a burning sensation in the mouth, throat and stomach. I have seen persons who had eaten not more than a few ounces, and it caused such distress, that vomiting, followed by violent purging, lasting several hours, was the sequel; persons who could eat pure honey with impunity, and were very fond of it, too. Such is the character of this honey that most persons have supposed it to come from pepper wood (*A. spinosa*), the taste of which is very much like that of prickly ash (*xanthoxylum*). The honey is of fine appearance, being transparent as water, but of medium consistency. Slow to granulate. It will remain liquid six months, and I do not know how much longer. I have never tried boiling it to remove the pungency. I contemplate making some experiments the coming season on this honey. Bees will winter on it if they have plenty of it. My bees have had no other honey, and have wintered in fine condition. I would suggest that when this harvest comes in, to extract all the honey on hand, and let the bees have the benefit of this honey for winter use, as a safe plan.

I shall make more extended observations on native honey plants in northern Texas, the coming season, and hope, also, to be able to write a paper on cultivated honey plants as soon as I have satisfied myself as to their value in this climate.

It will be remarked from the foregoing incomplete descriptive list of

honey plants, that our natural resources for the production of honey, are equal to any in the south or west. Our climate is such that our bees winter well on the summer stands, plenty of stores to prevent starvation being necessary only. Our country is subject to severe droughts once in every three or four years, which is very trying on our apiarists, causing heavy losses on account of starvation.

There are other plants deserving attention in a paper like this, but as I have not had an opportunity to examine them, and visit their localities and ascertain their value, I will pass them by. I have been more lengthy than I intended, but I desired to offer a few remarks on botany and entomology, to explain certain extraordinary phenomena in the production of honey. If this shall be the means of rendering information to those interested in the subject, then its object shall be accomplished.

White Rock, Tex., March 3, 1880.

Translated for the American Bee Journal.

### Value of the Different Races of Bees.

The following is the report of the debate on this subject at the Austro-German Congress, at Prague, last September, as reported in the *Bienen-Zeitung*:

Dr. Pollmann remarked that the history of bee-keeping for the past 30 years, had demonstrated that in obtaining the best races of bees we had to contend with many difficulties. Dr. Dzierzon, who introduced the Italian bee into Germany, in 1853, described it as "gentle, quiet and easy of management." Baron Von Berlepsch said he did not believe in the much-talked-of virtues of the Italian bees; he was decidedly of the opposite opinion. In 1867, the Baron Von Rothschild, Sen., recommended the Krainer bee. In 1872, Count of Kolowrat, and Herr Cori, introduced Cyprian bees; and the value of this race is now a much disputed point. Some admire their beauty, but others pronounce them as cross as maddened beasts. The truth, evidently, lies between the two extremes. All races are good, if treated as near to the requirements of their nature as possible.

Dr. Dzierzon said that both his experience and observation proved that the Italian bees were gentle and not fond of stinging. They are very courageous in the defense of their stores, and diligent in the gathering of honey.



This shows that we were perfectly right in preferring this golden bee to the lazy black bees, which Virgil, in his day, so much praised. These characteristics present the principal differences between Italian and German bees. The Italian race is by far the best, according to my judgment.

Herr Klimke: As an apiarist and importer of bees into Silesia, since 1867, I find the Krainer bee the best race under all circumstances. It will cross well with other races, but best with the Italian. It is the most industrious as a honey-gatherer—is gentle, and works with more diligence.

Herr Hilbert said that perhaps no race of bees could be said to be the best under all circumstances—so much depends upon treatment, climate, country and the taste of the apiarist. Each race have some good traits of character, and will gather some honey. If we look for utility instead of fancy color, the German bee is beautiful. I do not desire to condemn the yellow bees; on the contrary I admire them greatly; but I think it useless to go to the expense and trouble of obtaining them, if economical profit is what we desire. It is inexpedient to spend large amounts of money in acquiring Italian, Cyprian or other fancy queens (which are often of questionable purity), as many have a passion for doing in our country. This may be called an acute disease of apiarists, which may become as disastrous to improvement as is the disease of foul-brood! Many a poor fellow who throws his money away for such, would act more wisely to spend it for personal or family comforts. For this reason I never offer to sell queens, and I have serious doubts of a man who will give 20 or 30 marks for a Cyprian queen, unless he is anxious to get rid of his money. If a man is able to do so, comfortably, he might procure a queen to improve his stock; but the improvement of the race of bees is a difficult matter, and is usually only successfully accomplished by a breeder and dealer of queens and bees. But the apiarist who wants to keep bees for the money to be obtained from the sale of his honey, should depend upon the revenue he may obtain from a careful and judicious management, rather than upon obtaining different races of bees. In improving the race, queens produced by the best colonies should be selected to mate with choice drones of another race. Cyprian bees use their sting more readily than the Italians. Any one not sensitive on this point will be much pleased with them, for with this exception they have all the virtues of

the Italian race. They are also hardier and do not dwindle away in the spring, as Italians do. They increase and swarm more readily than the latter, and are so warlike that they will with ease conquer any colony of Italians. For this reason they cannot be united with any other race. The Egyptian race of bees are quite useless. In attempting to improve the races of bees, we should have an eye to utility, by periodically adding new blood or crossing with a hardier race like the Cyprians.

Herr Budiegizki, of Bohemia: My experience as a stock raiser, proves that any race of animals will degenerate, if obliged to remain excluded from others. Importing the different races of bees has been highly beneficial. This was the happy idea of Dr. Dzierzon, who made it possible for the intelligent apiarist to thus "cross" their bees and infuse new blood into them. This has been a great benefit to the bee culturist.

From the Bee-Keepers' Magazine.

### Do we want a Co-operative Journal?

G. M. DOOLITTLE.

I was much surprised in reading the report of the N. E. B. K. Association, in the March number of the *Magazine*, to see the resolutions tending toward the establishment of a new bee paper. No bee journal could be successfully conducted on the plan as given in these resolutions. One of them says, "The columns of this co-operative bee journal are to be always open to contributors." This would give the editor of such a journal *no control whatever*, and he would be obliged to admit all *quarrels* into said journal, and all language, however indecent or abusive it might be, or else the journal must go down at once. Now an editor should always have the right to say what shall go into his paper, and what shall not; for without this power, his hands are tied and the publication is a failure.

Next we find that this journal must be "managed for the sole interest of the honey producer at all times, and disinterested *every way* in the *manufacture or sale of supplies* for the apiary." This would please me much and would be just what I would like, but, the question is—can a bee journal conducted on these principles be *self supporting*? I answer No. Why not? For the simple reason that the *price* would have to be *so high*, to make it pay, that but few would take it. Perhaps 300 would be willing to pay \$3 or \$4 each for such a journal, but the majority would say,



I can get the *Magazine* or *Gleanings* for a dollar and I would rather have it at that, even if it does puff the wares of the editors, than to pay four dollars for a co-operative journal. If this is not so what has caused the *Bee-Keepers' Magazine* and the *AMERICAN BEE JOURNAL* to lower their prices? The bee journal that gives the largest amount of information for the least money is the one that the majority will patronize, whether the editor has wares to sell or not. This is a fact that will meet us, turn which ever way we will.

It would seem by the action of the Convention, that the members thereof are not willing to extend to Mr. Newman the same privilege they do to their president, for, on page 51, I read: "I am sorry that there is an impression that a dealer in supplies allows his judgment to be warped by his position." As proof that they considered Mr. Root's judgment was not thus warped, they re-elected him president.

Again, they award a prize to Mr. Van Deusen for the best essay on comb foundation, when he is as much interested in the making and monopolizing of comb foundation as any man in America. Why not accord to the editor of the *AMERICAN BEE JOURNAL* the same privilege? There is something said somewhere about consistency being a jewel.

As to honey markets I find that the bee journals vary somewhat, but I fail to see where the *AMERICAN BEE JOURNAL* quotes honey lower in the Chicago markets "to further its own interests." In the March number, the *AMERICAN BEE JOURNAL* quotes honey in Chicago, from 16 to 18 cents, while the *Magazine* says, it is worth in Chicago 14 to 16 cents. Mr. Miller says in February *Gleanings* that honey is selling there at 22 cents, but I know some friends who sold their honey there, and did not realize the lowest quotation given above.

"It is reported by some that Mr. Newman submits to Doolittle the articles for *AMERICAN BEE JOURNAL* and that which he does not approve cannot be inserted." I wish to say that Doolittle has nothing whatever to do with the *AMERICAN BEE JOURNAL*, any more than he has with *Gleanings* or the *Magazine*. I simply write for it, as I do for them, and the editors clip my articles or throw them into the waste basket, as they see fit. It is a little tough, I know, to have an article one has spent time to prepare, consigned to the waste basket, but such things have occurred with me, and I claim the editor has a perfect right to do so.

In conclusion I would say, with Mr.

Clark, that there is no necessity for starting a new journal, as we already have six, each devoted to bee-keeping. If we wish a co-operative journal, let us see how much we wish such a journal, and if we wish such a one \$6,000 worth, no doubt, the editors of either journal will give us such a one, and drop the manufacture and sale of supplies. I want such a journal \$6 worth, and if 1,000 of us are in the "same boat," we can have it, I assure you; but until we are willing to pay for such, let us not find fault with the journals we have.

Borodino, N. Y., March, 1880.

For the American Bee Journal.

### Buying Untested Queens.

E. B. SOUTHWICK.

I notice friend Doolittle (whose writings I generally swallow without doubting) is very careful in getting his choice queen and colony ready early to swarm. Suppose she does come out and two-thirds of the bees with her are leaving for parts beyond reach, is it not a risk? I will tell my plan, which I am self conceited enough to think is much better: I get them ready to swarm as he does, but before they swarm I take two frames of brood with the bees that are on them, and the queen also, and place these in another hive and add brood from other hives and empty combs enough to make a good colony. Then I do not lose my choice queen and my queenless colony commences to rear queen-cells and will rear more, and better ones, than they would if they had swarmed, for there would be more bees to work at it and keep up an even temperature in the hive, which I think very essential.

I notice that nearly all who rear queens to sell recommend the tested queen to the purchaser and lament the great damage the cheap queens are doing to the business. I am not rearing queens to sell. I rear some for my own use, and if a friend or acquaintance wants one of me, I show him the queen that I will sell; show him her progeny and tell him her age, if I know it, and put my price which will vary from one to five dollars, or more. But were I buying queens for my own use, I would invariably buy the untested queen, and the sooner she commenced laying the better. My reasons are that the queen breeder, whether honest or dishonest, will rear queens from his best colonies and get the best he can, for it is to his interest to establish a good reputation.

When his queens begin to lay he knows but little about them; they may be pure or impure, but the careful breeder has little fears of that, for he has Italianized his own and his neighbor's bees. They may be good layers or they may be poor, he does not know which. Now if he sells them at this stage he is just as apt to sell the best as the poorest, and the purchaser for the one dollar is just as apt to get the best as the poorest. But suppose he rears them to the tested point; then he need be no longer ignorant of their quality. He finds some of them very energetic, active and great layers and will fill the hive with bees in a very short time; others will not lay enough to keep the old colony good. Some of them are worth five dollars, others not any thing, but all are purely mated, all are tested.

Need I say who will get these five dollar queens for two dollars? The poor ones fill the bill, and the best ones find their way into their own hives, or some friend of theirs, like Doolittle, through which they expect to establish a name. I need not mention the great chance they have to weed out their own apiary of the old and poor queens.

Mendon, Mich., April 3, 1880.

For the American Bee Journal.

### Cyprian Bees, a Superior Race.

D. A. JONES.

No doubt the thousands of readers of the AMERICAN BEE JOURNAL will be glad to hear that the Cyprian bees are superior to any other in the hands of some of the most experienced European bee-keepers. Being determined to ascertain whether or not the Cyprian bees were superior to all others, I procured the assistance of Mr. Frank Benton who has experience in queen rearing, and is able to speak the different languages required in the enterprise, and in January we started for the Island of Cyprus. But I was determined before importing, to go through Europe, visiting all those persons who have had experience with the Cyprians, and if they did not convince me of their superiority, to return home without going further than Italy, and importing Italians. Having visited the principal apiarists who had Cyprian bees, and learning all that is known of them, in Europe, I am greatly pleased with the information I received from all quarters and especially from those who never sell colonies, queens or bees; such persons as Count Kolowrat, Krakovsky, Edward Cori, Director Chancellory, &c. The Count imported Cyprian queens for

his own apiary, when one would cost \$200. His apiary is one of the finest in Europe. He thinks the Cyprians, regardless of cost, much superior to all others. When I visited him, he gave me a very warm reception, which I shall ever remember with pleasure. He stated that when all his other bees wintered poorly, the Cyprians wintered well, and when his others would dwindle down to a mere handful, the Cyprians would be strong, and their hives overflowing with bees before the others would be strong, thus enabling them to secure large yields of early honey.

They breed early and late, going into winter quarters very strong, and with young bees. Some of the principal breeders in Italy intend to get the Cyprians to improve their stock. If they decide that the Cyprians are superior to the Italians, will they not be very valuable to us, in America?

Being satisfied of their superiority I have purchased a large stock of lumber and nails for hive-making, and also a lot of superior loaf sugar for queen cages, wire cloth, carpenter's tools, and every thing required in an apiary, and have shipped it to Cyprus. Being a British subject I have secured through the British government the assistance of its officers there, and from a gentleman of Austria, the assistance of the Austrian consul.

We shall doubtless be able to start a large apiary, in spite of the superstition of the natives on the Island, who stop up all their hive entrances and fumigate the hives and yard to drive away the influence of the witchcraft that might be practiced on them, after one of us have been around. As soon as possible I shall purchase a large number and start a bee-farm and queen-rearing establishment, and as soon as I can, I will return to Canada, bringing with me all the queens I can secure; Mr. Benton will remain in Cyprus and take charge of the bees, rear queens, and ship them to me, or the parties in Europe who have ordered them, after the supply is sufficient to meet the demand. Those who have been importing heretofore, have been delighted to learn that Mr. Benton will remain on the Island, and asked us to import for them. We have with us, the Count's shipping cages in which to send him queens. We have also received orders from Messrs. Cori, Gravenhorst, Shroder, and others, who will have them, regardless of cost. I will write as often as possible and give readers of the BEE JOURNAL the Cyprian news, and keep them posted on all points of importance.

Corfu, Ionian Islands, March, 1880.

For the American Bee Journal.  
**Where Honey Comes From—No. 3.**

WM. TRELEASE.

If a flower be taken from a single hyacinth—a double flower would not do so well, because the artificial doubling has transformed some or all of the essential organs into petals—and the floral envelopes (a) removed from one side as is shown in Fig. 6, the pistil (o) will be seen occupying the center of the flower, and around this the stamens (b). A glance at the pistil shows it to be made up of an egg-shaped ovary, creased longitudinally with 6 equi-distant lines, and surmounted by 3 styles. Three of the grooves mentioned occupy the middle of the walls of 3 cells into which the ovary is partly divided by partitions (Fig. 8); and the other three, which are deeper, correspond to these partitions. At or near the top of the ovary, on each

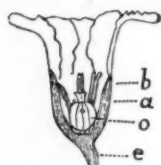


Fig. 6.—Flower of the hyacinth, with the nearer half of the perianth removed—natural size.

In all of the figures a indicates the perianth; b, the stamens; d, the gland cavity; e, the flower stalk; f, the ovules; o, the ovary; s, the style; l, the epidermis of the gland cavity; 2, that of the outside of the ovary.

of the last mentioned grooves will be found a glistening drop of fluid, sweet to the taste. Two of these drops are indicated in Fig. 6. The presence of these drops has been observed from time to time for many years, and even Linnaeus saw them and knew that they were nectar. But no study of the glands which secrete this fluid appears to have been made till 1854, when they were briefly described by a Frenchman, M. Brongniart. Notwithstanding this description, even in the last year the glandular tissue has been wrongly described as disseminated in the ovary, by one of the highest authorities on the relations between flowers and insects.

With a sharp razor the ovary may be cut from top to bottom in such a way that the section shall pass through the middle of a cell and the middle of the opposite partition. Such a section is shown, enlarged 11 diameters, in Fig. 7. The cell of the ovary is partly filled by the ovules or young seeds (f), and a narrow pocket (d) is found extending down a short distance from the point where the drop of nectar was seen, into

the tissue of the septum or partition. This is one of the nectar glands, and is a so-called septal gland of the ovary. A thin section across the ovary near its top, shows all three of the glands as very small crevices in the septal tissue. Such a section, at the point xy of Fig. 7, is shown in Fig. 8, where it is enlarged 17 diameters. The gland tissue, which differs very little from that surrounding it, is indicated by the figure 1.

Septal glands similar to, though much larger than those of the hyacinth, are found in the ovaries of many lily-like flowers, such as the *Canna*, or Indian shot, the *Amaryllis*, the squill, or wild hyacinth, the onion, and many others which need not be mentioned. In the

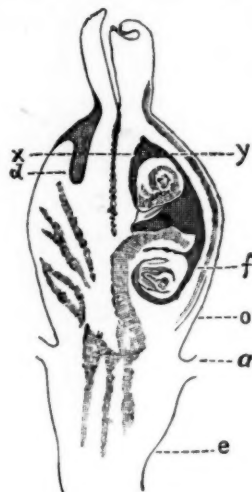


Fig. 7.—Vertical section through a septum of the ovary—magnified eleven diameters.

hyacinth, the gland is little more than a slight deepening of the furrow between the two halves of a septum, and is wider at its mouth than at any other point. In other cases, the gland cavity is of equal width throughout; in others it preserves the nature of a simple pocket, but is much enlarged below, and passes its secretion to the surface through a contracted portion often of considerable length, and then forming a true duct; and in still others the pouch is relatively very large, and its walls are folded into longitudinal and transverse ridges, thus largely increasing the secreting surface. In these latter instances, the gland is quite comparable to one of the simpler racemose glands of animals. Every septal gland may be considered as a cavity such as might be formed in a clay model of the ovary by



pressure from the outside with a hard object, and if we imagine this model invested with a piece of thin sheet rubber, representing its epidermis, and adhering to the clay at every point, it will be seen that this layer must necessarily line every part of the cavity formed, however complex it may be.

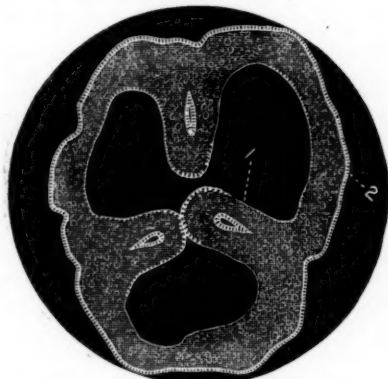


Fig. 8.—Cross-section of the ovary at xy—magnified seventeen diameters.

From this study it appears that in some cases supposed diffused glands may be merely concealed glands of definite form which are in communication with the surface by definite channels, and the drops of fluid accumulated at the openings of these may serve as guides to the glands within.

For the American Bee Journal.

### Fertilization in Confinement.

A. J. HINTZ.

This seems to be the most important question to the mass of bee-keepers at the present time; and it may well be, for to successfully breed any thing in its purity, for the best qualities, and to perfection, we must have perfect control over their mating.

When attending the Convention at Chicago, I was very much interested in the experiments of Prof. Hasbrouck, and the discussion that followed the reading of his paper, showing the success of the Professor and others.

In the summer of 1878 I studied all of the plans and methods on fertilization in confinement, that I could obtain, but none satisfied me, so I invented a plan of my own which I intended to practice during the summer of 1879, but the winter of 1878-9 cleaned out every bee I had (11 colonies), so that stopped me from experimenting, until

I obtained more, during the last week in June. I then bought one black colony, and early in the fall I found two small colonies in the woods, which I transferred to hives, so I have one strong and two weak colonies.

Now I will tell you the plans that I am going to try to get my queens purely fertilized. I have been thinking of a wire-screen house about 10x12, 8 feet high, but it would be too costly for experimenting, so I shall get up something cheaper, that will answer the purpose. Take 4 sticks, pointed at one end, 6 feet or more long, drive them into the ground in a square about 4 feet apart one way, 6 feet the other, have them all of even height at the top; these are the posts; get 4 pieces 4 feet, 4 pieces 6 feet long, 1x2 inches thick; these are the rails or frame pieces; nail one all around at the top of the posts and one all around a few inches from the bottom, then the frame is complete. Now get 20 or 25 yards of sheeting, cut it up into lengths to reach from the bottom of one side, over the top to the bottom on the other side; then cut off pieces for one and one half ends; get them sewed together as they ought go on to the frame. Stitch it over the frame and tack it to the bottom rail on each side, do the same with the ends, only leave enough loose at the hinder end to get in and out; on one-half of the front put one width of screen cloth all the way up and down, then your fertilizing cage is complete. In tacking on the sheeting, put a strip of thick cloth or thin wood over it, to nail through, then the sheeting can afterwards be taken off without tearing holes through it.

When the queen is a few days old, in the evening, take the nucleus or hive where queen and drones are in, place it in the back end of the fertilizing house, the hive facing the front. Feed them while they remain in there. About noon the next day, if pleasant, open the hive, and the queen if ready for her wedding trip will come out and the drones on the look out will soon follow, and the desired object may be accomplished. If not successful the first day try the next, and so on until it is accomplished. I should not take the hive out until I found the queen laying, if not over six days.

Another plan is this, which any one can easily try, if they have a well lighted empty room at their command. Darken all the windows, but on one side; put the queen with selected drones together in a cage, leave the cage in the hive where they belong, until mid-day, then get the cage into the room, take it to the corner furthest away from the light,



open it to let out the inmates, when the queen flies out the drones will accompany her on the wing, perhaps to your satisfaction. When one is fertilized then put her back in the cage. Marking the cage to know where she belongs. Then open the next cage and proceed as before until you have them all fertilized and caged; then open the windows and let the surviving drones fly home, and take the queens home too.

This is my theory, which I did not care to make public until tried and proved successful, but as I may not be able during the coming summer to give it a satisfactory trial, and as others have more bees and time to devote to experiments than I, and not having seen any mention made of these plans, I give them to the public for what they are worth. If any one has tried similar plans I should like to hear of it through the BEE JOURNAL, giving full particulars, whether successful or not. Perhaps by a little modification of some plan, if not already perfect, we may be able to devise a way that will prove as much of a success in fertilization as the use of comb foundation has been proven to be in the hive, or the introduction of superior queens to colonies.

An interesting question is: Does the season of the year, in rearing a queen, have any effect upon the disposition of her progeny? In other words, will the progeny of a queen bred in the early part of the summer, when honey is coming in plentifully, have a better disposition than a queen that is bred in the fall, when honey is scarce? If any one has made any observation in that line, I should like to have an answer through the JOURNAL.

Lamont, Ill.

Translated from the Bienen Zeitung.

### The value of different Races of Bees.

DR. DZIERZON.

Ever since we have become acquainted with and introduced various foreign races of bees, the color of some of which differs in a striking manner from that of our native bees, apiculture has become considerably more interesting and profitable. Many questions on which formerly opinions were very much divided, are now capable of being solved in a simple way....

Of the most gentle bees may be named the Carniolan and Italian bees. The former, in addition to their gentle nature, show a great disposition to swarm. The latter are distinguished by their extraordinary industry, their

capability of defending themselves against attacks by robbers, and the large quantities of honey they collect, in which they certainly surpass the capabilities of our native bees.

The advantage of the introduction of foreign races of bees, however, is not only to be found in the good qualities and superiority of the latter, but also in the difference in color. Generally speaking we may grant the correctness of the maxim that success depends, not on the color of the dress, but on the capacity for work, still a decided difference in color is also no mean practical advantage.

A Hungarian bee-keeper, in a letter which I received from him, states that in his opinion the Italian bees are valuable chiefly on account of the remarkably bright color of their queens, which greatly facilitates their being easily discovered among the bees.

The following example will illustrate the advantage of being able to distinguish queens more or less pure from one another by their color. Some of the colonies in my apiary at Carlsmarkt had become somewhat reduced in population during the winter, and in order to strengthen them I deprived several populous colonies in my distant Bankwitz apiary of a quantity of bees which I brushed into a box. When I arrived home I discovered to my regret that I had brushed off a queen with the bees. The weather being cold the operation had to be performed quickly, and as I had removed no combs from the brood-chamber where the queen generally resides, I did not suspect the presence of the queen upon the combs which I took out of the hives. What was to be done now? Having taken bees from four or five hives, which colony did the queen belong to? I was not long in doubt. Of the colonies which I had deprived of bees, two were pure Italians, one colony was tolerably pure, and one only contained rather dark bees. I guessed at once that the queen, which was also of a rather darkish complexion, belonged to this colony and my supposition proved correct.

When I returned to my distant apiary on the following day I found the colony in question without a queen, and on putting her back into the hive she was joyfully received, and thus the mistake was made good, which might easily have caused me the loss of a good colony. The queen of a swarm might fall to the ground, a queen returning from her wedding trip might by mistake enter the wrong hive and still be liberated unhurt from the bees surrounding her, or she might slip down the comb un-

perceived during the temporary removal from the hive and be discovered afterwards. I need not therefore enter into further particulars to show how important it is to know with certainty which hive she belongs to.

For the American Bee Journal:

### Feeding Honey to Store in Boxes, Etc.

GEORGE THOMPSON.

In the February number, page 77, there is an excellent article by G. M. Doolittle on "Feeding Extracted Honey to be stored in Boxes." I have been experimenting in this direction for the last two or three years, and I must also say that I have to feed a great amount of honey to get a little stored in boxes.

My plan, however, has been a little different from his. I feed below instead of above, my hives having all tight bottoms. I pour in about dusk 2 or 3 pounds, and it is usually all carried up by morning, so this does not prevent them from working when there is anything to gather. I had all my unfinished sections nicely filled and capped in this way last fall.

I have, however, come to the conclusion that it will not pay to put on empty boxes and feed to get them filled and capped over.

I would ask G. M. D. to lend me his ear; it may be that we can do something in this direction yet. You know we live in a "progressive age." By a careful and judicious selection of our best box-workers, can we not produce a strain of bees that will carry everything in the form of liquid sweets up into the boxes?—regular elevators, you know!

What a bee "the coming bee" is to be. Little or no sting, remarkably gentle, the swarming propensity worked out, rapid multipliers, the tongue greatly lengthened, the working qualities greatly increased, the elevating instinct marvelously improved, and, presto, "*Apis Americana*."

I was sorry that Mr. Heddon in the March JOURNAL discouraged the importation of the Cyprian bee. The latter part of his article spoiled all the rest. I wonder why he said: "I will pay no high price for any new bee," and at the same time acquiesce in what Mr. Langstroth wrote: "Crosses, I think, will prove the point in the coming bee." I would ask him if the Italian bee in America has been brought to its present state of perfection by "crosses" or by careful selection? He says: "I prefer to go slow." That is the way of some folks till they are driven

out of the market; or, after two or three years, into the traces by their more enterprising and lucky neighbors.

My bees came out of the cellar in splendid condition, but I am a little fearful they will be considerably reduced before warm, settled weather comes, for breeding ceased very early last fall. They gathered nothing after the basswood harvest.

Geneva, Kane County, Ill.

For the American Bee Journal.

### To what extent can Bees be Improved?

G. M. DOOLITTLE.

In the March number I said something in regard to the best way of rearing queens, as I considered it, but said very little about the selection of stock from which to rear said queens. There probably is not an apiary in the United States, containing 20 colonies, but what the owner thereof is compelled to acknowledge that certain colonies do better than others nearly every year in producing honey, as we often hear it remarked, if the whole apiary could have done as well as such a colony, I should have had a big yield. Some contend that the hive and strength of colony has all to do with it, but I am inclined to think that the race of bees has the greater influence over these things, and that certain traits of character exist in certain colonies of bees that do not in others. If this is so, there is a chance for improvement in our bees, and I am inclined to think that it will be more to our credit in the future to strive to improve on the bees which we have, rather than to keep importing stock. But how can we accomplish this improvement? I know of but one way at present for the majority of us to accomplish this, and that is through the queen. A few cases have been reported, where the drones have been brought into subjection, so that an improvement could be made by a selection of drones, but a majority of those who have tried fertilization in confinement have only made a failure of it. Thus, we have only the queen to aid us in the improvement as a certainty. Well, such being the case, how shall we proceed? I do not know that I can give my views better than to relate some of my experience.

About seven years ago I began to turn my attention to this matter, and adopted the following plan: At the close of the honey season I struck an average of the number of pounds of surplus honey produced by the whole apiary, and then all colonies which did not come up to



the average were marked, as well as those which produced the very largest amount. (This, you will see, requires a record kept of each hive by some means.) Those that were marked as not coming up to the average were united, either in the fall or spring, with others that had produced an average amount or above, if such uniting was deemed advisable through colonies light in bees or scarcity of honey. Of course, we always destroyed the poorest queen and retained the other. If all were not disposed of in this way, we superseded the inferior queens by those reared from the colonies marked as producing the very largest amount. All queens were reared, as far as possible, from those producing the largest yields of honey, and so, by following this plan and rearing the most of our queens, as given in the March *AMERICAN BEE JOURNAL*, our bees have been improving as regards honey-gathering qualities instead of retrograding.

As far as possible we have selected our best blooded Italians to breed from, always, however, keeping an eye to business rather than to color. But during these seven years we have found other points worth looking after as well as honey producing, such as good disposition, keeping brood in compact shape, remaining quiet during the winter, etc.

Our attention is just now turned in another direction. The readers of the *JOURNAL* will remember that it was claimed the honey which drew the gold medal at the National Convention in 1877, was gathered by black bees; one of the reasons given for so claiming being that black bees made whiter looking honey, or whiter looking comb than the Italians. We discovered in 1876 that we had one colony of Italians which so sealed their honey that it was superior in appearance to that of the black bees. In 1877 this colony produced upwards of 300 lbs. of box honey, and the most of the honey in the crate drawing the medal was selected from these 300 lbs. Here was a chance to improve our bees in another direction, as we all know that the appearance of comb honey has a great deal to do with its sale, and as I had but one colony that produced more box honey than this, I thought it something worth trying for. The queen, being quite old, was superseded in 1878, but from the cells left in the old hive at swarming we reared a few queens, only one of which came up to our ideas of excellence in every way. From her we reared some very fine queens last season, and propose, if possible, to stock our yard mostly with this strain of bees the com-

ing season. These bees have also, as a rule, wintered well. They are not as light colored as some, but as most of the young queens are nearly duplicates of the mother, we are satisfied on that score.

Thus every apiarist, if he will keep his eyes open, will find desirable points in certain colonies of his bees which he can improve upon, and by adopting the plan as given above, his apiary can be steadily advancing in worth to its owner. The only drawback that there is to certain improvement in any direction with bees, is our inability to control the drones. Then let us try with more zeal than ever, the coming season, to make fertilization in confinement a success.

Borodino, N. Y., April, 1880.

For the American Bee Journal.

### Queen Rearing.

H. ALLEY.

For 20 years I have been rearing queens: 18 of these have been devoted to the Italians. Almost every conceivable experiment for rearing queens has been tested by me. For several years I have used only the following method: My combs for nuclei are  $4\frac{1}{2}$  inches square, as they are the most convenient, and in my queen-rearing hives I use 24 of them at one time. There are 3 sections to these hives, each containing 8 combs. These combs are well filled with honey and pollen. Now the strongest colony of bees is selected and after being made to fill themselves with honey, by drumming on the hive, they are all brushed from the combs into a box that has wire top and bottom, so as to give plenty of air. The queen is found and removed and the bees left in the queenless state 10 or 12 hours, this fits them for queen-rearing. Now I prepare the queen hive by filling each of the 3 sections full of combs, leaving out 2 or 3 of the frames from which one-half the comb is cut, to make room to put strips of comb containing eggs just hatching, for the bees to make the queen-cells on. The comb the eggs are in is cut in strips about 3 cells deep, and is attached to the combs in the frames with melted beeswax and rosin simmered together and used, of course, while warm. The strips of comb are shaved down, so that when looked at sideways, they form the letter V. Queen-cells will be made on both sides of it. Having thus prepared the queen-rearing hive we place it on the same stand that the bees were taken from, and if there are no objectionable drones



the cover is removed (without smoking the bees) and the bees will enter the new hives readily, and in the course of an hour, queen-cells  $\frac{1}{4}$  inch long may be found. The strongest colony should not be permitted to rear over 25 queens. The more they rear the poorer will be the queens. In 12 days from the time the queen-cells are started the young queens will commence to hatch; that will make 16 days from the time the eggs were deposited. No 8 or 10 day queens can be raised by this plan, as is the case when the queen is removed from a full colony and the bees allowed to select the eggs themselves. Under such circumstances the bees will select anything, from the hatching egg to a larvæ 3 days old, to make a queen of. By my plan the cells are all made in a bunch, and cannot be separated with a knife. I use no lamp nursery or other artificial apparatus for hatching queens—hatching boxes, with glass in 2 sides are used. The combs having the cells are placed in them and bees enough to keep up the natural heat are put in with them. A young queen can be seen readily when she emerges from the cell, as they are nearly white when first hatched out. The frame is removed and a sponge used for the queen to run on. She is then placed in a cage or nucleus that has been queenless 3 or 4 days. I never handle queens just hatched, by their wings. In the course of 24 hours all the cells will be hatched out.

What will you do with the bees that have just made the cells? I do this; more cells are wanted, but these bees will not do to rear them, they can be used for this purpose, but the queens would hardly be worth \$1.00 each. Now I go through the same process again that I did in the first place. Another strong colony is selected and all the bees brushed off the combs into the wire box. The combs are replaced in the hive just as they came out. The hive is then placed on the spot where the queens were reared, the bees in the queen-rearing hive are then shaken from the combs in front of the new hive, and a queen, or rather the queen taken from the full hive given them. By this method all the large colonies are kept full of brood as they are never queenless. As soon as the cells are sealed they are removed to strong nuclei and from there they are removed to the hatching boxes when the cells are ready to hatch. The reader will notice that while the bees are rearing queens they have no brood to care for, except that given them to rear queens from. All their forces are directed to queen-rear-

ing. While forage is abundant no feeding need be done. When the fields furnish none, the bees must be fed until the cells are sealed. When the combs are full of syrup and sealed or ready to be sealed, they are given to the bees in nuclei, or the bees in fertilizing boxes. I do not keep my breeding queens in full colonies. I could not run my queen-rearing business easily and conveniently if I was obliged to open a full hive every time I wanted a few eggs to start queens. They are kept in small hives which have the  $4\frac{1}{2}$  inch frame; five of these frames are used. The middle one is drawn out twice a week, or every day if needed, dated and placed in some other hive for the eggs to hatch. I know just when to look for eggs that are ready for my queenless bees, when I want to rear queens. Larvæ over 12 hours old should never be given bees to rear queens from; queens reared in such manner, will hatch in 8 to 10 days and be rather short lived and this is the case where too many are reared in one hive; even though they are 16 days from the egg, they do not live so long as queens that are reared in hives where only a small number are reared at one time.

The price or color of the queens does not make the quality. My opinion is that a pint of bees will rear as good queens as are reared under natural swarming, provided, they rear but one at a time, but the difficulty is to fix the brood so that they will rear or make only one cell. I have experimented very much on this one thing, sometimes with success and sometimes with failure. I can place one egg in a hive, but the bees do not like it at all. Sometimes they will make a fine cell and then again none. If I could meet with good success every time I would rear queens in no other way.

The year 1879 will long be remembered by me. I never received so many orders for queens, and never had such hard work to get them fertilized. From June 1 to 20 there was not a favorable day for queens to fly. From that time to July 4, the weather was fine, but from then till October it was very unfavorable, all the time. To perfect 1,000 queens I had to rear 2,000. My expenses were heavy, and on the final wind-up, I found that I was many dollars out of pocket. I commenced last fall to get ready to make a success, the present season, and am bound to do it.

I have written the above for the benefit of those who have sent to me for my method of rearing queens.

Although I have not advertised any since September last, nearly 1,000 bee-



keepers have sent for my circular, and 99 out of every 100 say, "I saw your advertisement in the AMERICAN BEE JOURNAL." The BEE JOURNAL must have a large circulation—and why should it not? I notice that one man thinks we need a new journal, and expresses a strong desire to kill out the old AMERICAN BEE JOURNAL. I wonder where they will find their NEWMAN to run it; they must have him if they expect to meet with success.

Wenham, Mass.

For the American Bee Journal.

### Queens Duplicating Themselves.

A. F. MOON.

The March No. of the AMERICAN BEE JOURNAL, under the above heading, contained an acceptance of my proposition, from Mr. D. A. Pike, which was made in September number of BEE JOURNAL, of 1879. I was pleased to see a breeder come to the front with these "princesses," and hope that he will, as he says, "bear off the palm."

From the following postal card received from him it would seem that he is laboring under some misapprehension with regard to this proposition. If there is anything he does not fully understand, he has plenty of time to inquire or correct, as the case may be:

Smithburg, Md., Jan. 6, 1880.

In the September number of the AMERICAN BEE JOURNAL appeared an article from you, relating to the matter of duplicating queens; I do not like to see such a matter rest so, to be left forever; I am of the opinion that such queens are in existence, and that I even now have them in my apiary, having tested them to my personal satisfaction. The plan of testing does not appear plain in every particular, perhaps you can give some light on the subject. Are the men who are to rear the queens situated so as to have no difficulty with black bees? How many are to constitute this committee? If perfect satisfaction can be obtained, you may find an acceptance to your challenge.

D. A. PIKE.

From the above, it would seem that Mr. Pike is laboring under some mistake. First, the plan of testing is very simple, all he has to do is to send the "princess," (one that he has tested to his personal satisfaction), to Prof. Cook, or any man, or set of men, and they will put her to the simple test of rearing 12 queens from her; the 12 to be reared at one time. I do not think it will make any difference what time of the moon they are to be reared, whether in the new, full, or the last quarter, only that the 12 in number are

to be the exact "duplicates of their mother in color!"

Their being reared near black bees will never affect a purely mated queen, and especially one of such remarkable purity, and more especially one that has received a careful test by friend Pike, for such an occasion as this. As to the number of committee it will make no difference with me, if they be men capable of judging between black and white.

All I have to say, is send on the "princess," one that you know to be true (be sure you get the right one), and Prof. Cook will test her, and report the result, whether they are duplicates of the mother, or not, or have colors of different hues.

Rome, Ga., March 17, 1880.

For the American Bee Journal.

### Hives made of Wood, Plaster and Sand.

C. W. SAPPENFIELD.

On the subject of wintering bees, much has been said, and many have given their views and modes of wintering. There are points that almost all agree upon, viz: plenty of food, even temperature, occasional flights, and keep them dry. The first point may be remedied by feeding, either in the winter or in the fall, depending on latitude as to fall feeding. If the colony has 20 or 30 lbs. of honey it is safe, on that point.

Even temperature is the point on which so many disagree—as to how the proper temperature shall be attained.

For 30 years I have been "experimenting." I have tried cellar wintering, with only moderate success, losing many by "spring dwindling." I have wintered in a warm house, with nearly the same results. I have wintered on summer stands, packed in chaff, straw, leaves, and sawdust, and in all of the latter modes, have had trouble with mice, rats, and moisture; losing more or less. I have tried the "American," "Cottage," "Continental," "Hicks," "Kidder," "Mitchell," "Langstroth," and many other styles of hives, with about the same results, as to wintering, but a great difference as to surplus honey.

I have for three winters, used the "Farmers' Bee Hive," which has so far proven to be the best for cellar, warm house, straw, chaff, leaves and sawdust packing, all combined. It far excels any and all of them. I have the first colony yet to lose by wintering in them. I have in every instance left them on

the summer stand, in the same position; only removing the sections, and placing quilts over the frames. The plan of the hive is that of the Langstroth, except the base, which is like a hip roof inverted and supported by four legs. The surplus arrangement is that of the Langstroth. The inside is plaster and sand, an inch or more thick, with an air chamber between the plaster and wood. Having tried the hive three winters under the most severe tests, with entire success, and as a summer hive with the same results, being the only hive, this year, in which I obtained any surplus honey, averaging 80 lbs. to the colony, with the same facilities of my other hives, and the same strain of bees. The only reason I can give why I got better results from the lined hive is, that the plaster and sand being two of the greatest absorbents known, facilitated the evaporation of water from the nectar, also being a good non-conductor, enabled the bees to keep the proper temperature. I use no upward ventilation, as in summer it only attracts robbers, and in winter it ventilates the bees out of your hives. I obtain all the advantages of upward ventilation by absorption. By wintering on the summer stands my bees fly when it is warm enough, the plaster and sand, keeping the hive dry and with such a house the bees pass the winter in a continuous holiday, greeting their master with music every warm day.

Crawfordsville, Ind., Feb. 19, 1880.

For the American Bee Journal.

### **Taking Sections from Broad Frames.**

O. E. COOLEY.

A correspondent in a recent BEE JOURNAL relates his troubles in removing sections when filled from the wide frames which hold them in the super. The plan that has proved entirely satisfactory with me for the past two years is as follows: My supers are 16 inches wide, and will consequently hold 8 broad 2-inch frames of sections. When putting them on the hive I place 4 frames of sections on one side in the super, and three in the other, and put a frame of comb in the space left in the middle. The top bar to my frame of comb is  $1\frac{1}{2}$  inches wide, and the bees will not fasten it to the sections on either side. When the sections are filled, or when I wish to examine them, I have only to take the frame of comb out of the center, and I can remove the sections at once. Another advantage is derived from using the frame of

empty comb: the bees will go to work sooner than they otherwise would the supers and they will begin in the right place. Last year I put 3 and 4 frames of comb, and filled out the balance with frames of sections, in a few supers, in order to ascertain if swarming could not be partly controlled thereby, and the result was reasonably satisfactory. By keeping the honey closely extracted from the frames and taking off the sections as soon as filled, and replacing them with empty ones, swarming was materially checked, although not entirely prevented.

Will others experiment in this direction and report results in the BEE JOURNAL?

Bluffton, Iowa, April 1, 1880.

Translated from the Bienen-Zeitung.

### **Electricity upon Workers and Drones.**

O. FREIWIRTH.

When I made my first trials of subduing bees by the use of the electric induction current, I had no drones in my experimenting hives, and could therefore only establish the fact, that bees, according to the strength of the current employed, would sooner or later fully recover, apparently without injury to their health. Afterwards, when I had drones, I continued my experiments, first taking them singly and afterwards together with the workers. Here I made the remarkable discovery that the drones, as soon as they come in contact with electricity, instantly die. At first I supposed that the current had been too powerful, and to test this, I employed the galvanometer, by which to ascertain the strength. To my surprise I found the magnetic needle showing the same as usual, 20°. By this I was led to believe that drones are more delicate and much more frail than the workers. To make sure of this, I took a small number of bees and drones, and electrified them together and simultaneously. The result was the same as before; the workers recovered after a few minutes, but the drones were dead. Of the relative weakness of the drones, every apiarist can convince himself by taking a full grown drone between two fingers, and, without pressing it, keep the fingers on the head and the little shield upon the back for a few seconds, he will then have in his hand a dead drone; while a worker, treated in the same manner, will remain healthy and active. In this bodily weakness of the drones may be found an explanation of the remarkable circumstance, that the drones run around in the hive cow-



ardly and timid, and that the little bees come off victorious in a combat with them. In all probability it is not always the sting, which brings death to the drone, but their being pulled hither and thither.

This remarkable fact of the different effects of the electric current upon bees and drones may induce apiarists to try further experiments in this direction. Possibly electricity will furnish a radical remedy for relieving hives that are overfilled with drones. Whether the queen would suffer through the effect of the induction current or not I could not ascertain, as I had no superfluous queen to experiment with. But I think we may safely assume that a queen whose constitution permits it to live for several years is not more delicate than a worker-bee. Continued experiments might prove whether electrified queens would be capable of producing drones only, as is the case when they have been chilled.

By charging with electricity the alighting board I have disabled and caught a large number of robber-bees in front of a hive where the robbing was going on lively. I closed the entrance, and charged the alighting board, to which I had attached several wires, with electricity, and all the robbers that flew upon it remained sticking to it as if nailed to the spot; the small pile soon increased to one of wonderful size; when no more arrived I swept the captured robbers into a little box and towards evening I set them at liberty. I hardly think that a more radical remedy is known, for usually the robbers attack another hive when the entrance of the one first attacked has been closed to them.

At all events, electricity deserves to be taken into consideration by all thoughtful apiarists. Who knows but that the scintilla of electricity may not also permit a great light to dawn upon us?

Cannstatt, Germany.

For the American Bee Journal.

### Spring Report—Strange Case—The Northeastern Convention.

R. M. ARGO.

In the January No. of the BEE JOURNAL, page 42, I requested bee-keepers to report this month their success in wintering. I predicted that all black bees not fed for winter, in this neighborhood, would die during this month, if not before. The remarkably mild winter is all that saved them. But,

so far as I can now learn, all such as are now alive are only living "from hand to mouth" on fruit bloom, and a few wet days would end their existence. As I predicted in a former article that we may have our winter in March and April, so it has been thus far. Peach trees have been in full bloom nearly 2 weeks, and were not killed a week ago, though they may be killed now, as we have had several sharp frosts, and some ice  $\frac{1}{2}$  of an inch thick. I only lost 1 colony, and that during March. It was one of my strongest ones, with an imported queen, leaving about 20 pounds of sealed honey, and plenty of pollen in reach; it had drones on the wing on Feb. 21; it was all right on March 1, but was found dead after the cold spell about March 19. All the bees were in a large compact cluster. I confess that with all my bee-skill I am unable to account for this; for they had a good flight and were gathering pollen a week or 10 days before. Here, Mr. Doolittle, is a case for you.

Nothing ever struck me with greater surprise than the report of the N. E. Bee-Keepers' Convention. I have always had much respect for many of those present. I have known parallel cases to transpire among members of religious and political conventions; but such conventions or members always came out at the little end of the horn, just as I expect the above one will, in due time. I cannot well explain what was the matter with these men; but Job i: 6—12, will probably furnish an explanation.

I am interested in the whole bee fraternity of the United States, both North and South, but in no particular convention, association or journal, and, therefore, I am an impartial, unbiassed observer. One good journal is better than two; two are better than three, and three better than four, etc.; so, I say, we need no more bee journals, but we do need a North American Bee Convention, if the members will all dwell together in harmony in one general ring, or no ring at all. The attempt to form a granger journal signifies the formation of a ring; I can understand it in no other way. But no granger ring ever held together long, and never will, on such principles as they are formed.

Lowell, Ky., April 12, 1880.

☛ In Cochín, China, they have a species of bee larger than the German. They are numerous along the coast, and have a singular long mouth, with which they suck the honey from the deepest flower cups. They build comb in hollow trees.



## Conventions.

Read before the N. E. Convention.

### Races of Bees and Different Crosses.

JULIUS HOFFMAN.

Ever since the introduction of the gentle and industrious bees of Italy by the great master, Dr. Dzierzon, intelligent bee-keepers of Europe and this country have labored to improve their bees by breeding as well as by introducing different races.

It is well known that great differences are found in productiveness and disposition among colonies of the same apiary, even when belonging to the same race. We also know that these differences exist among the several races of bees. This fact being established, the bee-keepers of to-day will have to take advantage of it in trying to procure the most profitable bees.

I will first consider the improvement with a certain race of bees, which I believe to be of the highest importance. When bees increase naturally (that is, by swarming), the best colonies will first be ready to swarm, and rear young queens, which will generally cross with the drones from other good colonies, as such will naturally produce drones earlier and more numerous than less prosperous ones. This is entirely different when we do not allow our bees to swarm and compel them to raise queens; great skill and experience will then be required to keep our bees from degenerating; we ought, therefore, to imitate nature, for it is only in this way, by crosses between our best colonies, that we can procure the most profitable bee, and even improve nature.

The improvement of our bees by foreign races is another important point that we gain over nature, as we can take advantage of the good qualities of the bees we import from distant countries, and reduce the qualities which are not desirable. This will be accomplished by cross-breeding different races, which will lead us to the much discussed question of which is the best race of bees? In reviewing the different races of bees, I will try to give their respective good and bad qualities as they appear to me, and with as few words as possible.

I will begin with the common black bees, the native bee of Germany and England, which at present is predominant in this country. This bee has some excellent qualities; their queens are long-lived and hardy, and the comb

honey produced by them is the nicest in appearance that we get. Credit is also given them for working on buckwheat better than Italians.

Next I will mention the Italian bee. Their appearance is so well known that I will omit describing them. The Italians are now generally acknowledged to be more industrious and gentle than black bees. In time of scarcity they will work on flowers which black bees will not notice; in consequence, they store more honey. They defend their hives better than blacks against robbers and the moth. In handling them they are more quiet, and do not leave their combs as blacks do, which enables us to find the queens much easier; the light color of their queens also aids us in this last point. They have, however, one bad quality; they cease brood rearing too early in the season, and generally go into winter quarters weak in numbers.

The Carniolan or Krainer bees are not much different from the common black bee, they are a little more gray in color than black bees, and are said to be more gentle, but their swarming propensity is very great.

The Egyptian bee has been imported to Germany, and, after a thorough trial, it has been found worthless for honey production.

Lastly, I will mention the Cyprian bee, which was imported by Count Kolowrat, in 1872, into Austria, and is now fast becoming the preferred bee in Austria and Germany. As the Cyprians have been described in the *Bee Keepers' Exchange* and in the *AMERICAN BEE JOURNAL*, I will now only give in short their prominent qualities as known to me by information and partly by my own experience. Although more beautiful than the Italian, they are not as lazy as most of the bright-colored Italians, but are a very industrious and vigorous race. One of their most prominent characteristics is the rapidity with which they carry on breeding in the spring. Mr. E. Hilbert, of Prussia, the well known discoverer of the foul brood remedy, said the following at the last Bee Keepers' Convention held at Prague: "I will admit the Italians to be more gentle, but this is the only point in favor of the Italians. In all other good qualities given to the Italians, the Cyprians not only equal them, but surpass them greatly. A Cyprian colony will never, even in our cold climate, go into winter quarters so weak in numbers as the Italians, nor will they come out so weak in spring. One very good quality of their queens is their longevity as compared with Italian queens.



For defending their homes, they have proved to be the most vigorous, watchful, and strongest of all races." In conclusion, Mr. Hilbert says: "For the purpose of improving the blood of other races in crossing them, the Cyprians are the most valuable of all races." So far, all other reports agree with the above with the exception of one point, which is their disposition. While some say they are crosser, others find them as gentle as Italians.

Having now reviewed the different races of bees, I will give my conclusions in regard to what I think the most desirable "cross" of the different races for practical bee-keeping, and will say: Mate the gentle Italians with the vigorous Cyprians.

If from some queen-breeders we can get pure Italians, and from others pure Cyprians, we will have the best material for the future bee of America, and it only remains for us, by intelligent breeding, to incorporate the two into one fixed race.

Fort Plain, N. Y.

Read before the N. E. Convention.

### Comb Foundation and Its Uses.

MRS. F. DUNHAM.

Bee-keepers at the present day scarcely need to be told what comb foundation is; though its general use can be dated back but a few years. Even as late as the seasons of 1876 and 1877 only a few used it in any quantity; and of those few approved of it, while many condemned its use altogether.

Writers have given us a minute history of the original invention of foundation, and to Herr Mehrling or F. Weiss be accorded the great honor. It is an easy thing to improve an invention, after a great mind has originally thought of and demonstrated its practicability.

We have many ways of making foundation though there are but four kinds:

1. That with the base of the cell in natural form, with a mere outline of the wall between the cells.
2. That with the base flat, with wires inserted, and the walls well formed for the brood comb, while that for surplus honey has no wire.
3. That with the base of natural shape, and walls brought up to form even surfaces, while at the joining of the cells there is a triangular portion of wax, which adds strength.
4. Foundation with walls on one side only, and a comparatively flat surface on the other.

A few years ago all efforts were turned toward keeping drone comb down; that is, preventing the bees from building it, or by cutting it out after being built, and one of the strongest arguments against artificial division of colonies, which now we find so essential, was the liability of bees to build drone comb under certain conditions, which it was then almost impossible to guard against; and much labor was spent upon a matter to which we give no thought to-day, for the reason that it is only necessary to give bees full frames of *worker* foundation to insure there being no drone comb built in the hive.

And it is difficult to estimate the importance of this matter, for, with the ability to control the rearing of drones given us, we can hardly see any limit to the improvement of such qualities as we demand in a queen and her progeny, viz.: docility, prolificness, honey gathering, and disinclination to swarm.

And, again, how we labored to have the bees build straight combs. The apiarist who could say: "I have 100 colonies of bees, and not one crooked comb among them," was looked upon as a wonder of industry; for it represented days and months of unremitting care, attention, and *hard work*. Now it is nothing, straight combs are a *certainty*, with a free use of foundation.

As before said, there are several methods of making foundation. The wax must first be formed into sheets, where rolls or presses are used; and there are also a number of ways to sheet wax, of which I will mention the three best: Smooth boards, thoroughly water soaked, are dipped into melted wax, and then into *warm water*, the operation being repeated till the sheet is thick enough. Or a wooden cylinder is used, which revolves in the wax; this reduces the labor of sheeting it very materially, and, lastly, metal plates are dipped into the hot wax and then into *ice water*. It is of course unnecessary to add that the last is the most expensive method. The sheets so formed are dipped into a preparation of slippery elm or starch water (some use soap, but it should be borne in mind that the bees dislike soap), and then carried through the rolls of a foundation machine, to give them the desired impression of either style of foundation before mentioned, with one of which wires are deftly inserted. To prevent the wax sticking, it is necessary to brush the rolls well with the solution used.

There is also a very ingeniously-formed press, in which sheeted wax laid on a brood frame already wired is

pressed into foundation, which of course is fastened into the frame by the same operation.

Plaster or metal casts, double or single, are also used; by being dipped into melted wax, the sheet so formed being the foundation, without needing any further manipulation.

Another and more laborious method is to take sheeted wax and, with a die or cluster of dies and mallet, form cells as regularly as possible over the whole surface; the opposite side, of course, it is almost impossible to form.

In regard to the proper use of foundation, I may be pardoned perhaps in making the assertion, that, in nine cases out of ten, the good or bad effects in the brood chamber are entirely within the control of the bee-keeper himself, depending largely upon the thickness and purity of the foundation, the manner of fastening, and the time of its insertion into the hive.

Many apiarists, who approved of foundation from the first, were severely tried by its liability to sag, and sometimes even break down, after being well drawn out and filled with brood and honey.

It was soon discovered that *breaking* of the comb was generally caused by impure substances mixed with the wax; as the wax of commerce is frequently adulterated with tallow, cerasin, flour, etc.; though all may be detected by an experienced person, either by odor, taste or feeling.

Sagging was due to the same causes, and sometimes by a failure to insert the foundation with the broad part of the cell uppermost, as the wall with the pointed part up gives much less support, as is easily demonstrated. Another cause of sagging was the use of sheets of foundation made too thin to support (after being softened by the great heat of the hive) the mere weight of the bees employed in working it out.

A single season will convince those using it extensively that it not only does not pay, but is a positive loss to use foundation in the brood chamber thinner than 4 or 4½ feet to the pound. In using foundation to obtain the best results, take a heavy sheet, cut it to the size of the frame; it must be fastened properly, that is, warmed slightly and rubbed with a putty knife well into the top bar of the frame; and here let me say that I most decidedly prefer the triangular top bar; it gives good support to the foundation, which by its use has not to be bent at right angles, and so, perhaps, be broken or cracked, and there is less danger of your knife cutting through in fastening it on. Having fastened the comb foundation into the

frame, insert it into the hive in the afternoon, so that the whole forces of the hive may work at it and have it well drawn out before it is subjected to the heat of the noonday sun. You need trouble yourself no further about it, for the bees will take care of it.

But suppose you had used the thin foundation (say 6 Langstroth frames to the pound), you gain 2 sheets, or the bases of 2; but see the added work. In the first place, you must cut it at least an inch short, for fear of sagging, some will not, but the bees will fill up the inch allowed with drone comb; other frames will stretch, and will have to be carefully looked after, and perhaps cut off; and, again, many will not be joined to the bottom bar, which is bad for extracting; and, after all, you merely have the central portion of the comb, and your finest honey has to be drawn upon to make up the deficiency in wax, at the rate of 15 lbs of honey to produce 1 lb of wax (some authorities say 20 lbs), but, at the least calculation, the wax so produced costs \$1.50 per lb, to say nothing of the enforced idleness of your bees, in secreting wax, at the height of the clover or basswood season.

The giving of foundation in early spring induces the bees to great activity, and so influences the queen to lay freely, when she would not do so at all in old combs. Therefore, provide the queen with foundation as fast as she is able to occupy it, taking away the old combs to make room, and saving them for swarms or extracting.

#### Thin Foundation for Surplus Honey.

Here the bee-keeper has not the matter so fully in his own hands, for the bees *will* thin foundation in the surplus boxes, and, again, in a great flow of honey, sometimes *will not*. I imagine the form of the piece of foundation given them has something to do with it. A pointed piece, reaching to the bottom of the box, and serving as a climber, is almost always thinned, while a straight piece, the full size of the box, but reaching only half way down, is not as apt to be well worked out. It is much better to fill the boxes full, and have them drawn out before the season commences, in the body of the hive. Thin, flat-bottomed foundation is very highly prized for surplus honey, as is also all that with a very thin base.

But it should be borne in mind that the heavier foundation should *never* be used in boxes in its crude state, but should be first well drawn out in the lower hive.

In concluding, let me mention a strange fact that has come to my no-



tice. In melting a boiler full of wax, the sheets first dipped out are the lightest colored and most beautiful, but they are also the *weakest*; that dipped after, and several shades darker, has greater strength and tenacity. Undoubtedly others have observed the same thing.

The bee-keeper of to-day has great cause for thankfulness. For this invention of comb foundation is of as great importance as the movable frame hive, which in a few years revolutionized the whole system of bee-keeping. All honor to Langstroth.

Foundation is now fully appreciated, and the fact is becoming apparent, that, properly used, we can double our honey crop, and with less labor than it took in years gone by to manage the common box hive.

Depere, Wis.

Read before the N. E. Convention.

### Perfect Comb Foundation.

J. VAN DUSEN.

To comprehend the subject, it is necessary to define what constitutes perfect comb foundation. It is a sheet of pure wax put in such shape as will enable the bees to utilize the greatest amount of wax in the construction of their cells, in the least time—of sufficient strength when used in brood frames to retain a perfect shaped cell, and be handled safely in extracting or moving—to which you can introduce a colony of bees, whenever it is necessary to hive them, without danger of its breaking down, and when used in surplus honey to be acceptable to the consumer. The above are essential points in good foundation. There is a very general method of manufacturing by melting the wax, without using heat enough to color the same, giving it sufficient time to settle and free itself of impurities, and sheeting on flat sheets of iron, or cylinders of iron or wood, of a proper width for your rollers, which vary from  $3\frac{1}{2}$  to 18 inches, and, after passing through the rollers to dry, cut to size required, paper and box for market. This will answer for ordinary foundation, from 3 to 5 feet to the lb.; but when you get to the lighter foundation, 10 to 18 feet to the lb., it requires special facilities and special help. Others use a press making a single sheet for each impression, as in printing, the weight varying with the weight of each sheet. Order is an immutable law of our Creator, else this system of worlds revolving in mid-air would be clashing.

The tiniest insect that crawls is en-

dowed with the instinct necessary for its own preservation and reproduction. The honey bee is endowed not only with instinct but order. We find it not only building its cells but arranging them in perfect order, 5 cells to the inch, and that its cells may be of uniform thickness, they are made hexagonal, each square inch containing 25 cells, and each hive, as we furnish the frames, contains 8 combs, say 1 foot square, making 57,600 cells. A swarm of bees is put in a hive say with eight frames; they commence by building 1 cell at a time, here and there, in each of the 8 frames, and they will take from 2 to 6 weeks to fill these frames, according to circumstances, or as honey is flush or scarce; so that it used to be an old adage that "a swarm of bees in May, was worth a ton of hay;" "in June, a silver spoon;" in July, not worth a fly." These 57,600 cells we will suppose to be  $\frac{1}{2}$  filled with brood and the balance with honey, so we may estimate a colony to contain between 20,000 and 30,000 bees, as to size of brood comb used. To build 57,600 cells in the brood department alone is no small task, but when we add as many more for surplus honey, it might seem discouraging to any but the busy bee, they being formerly required to work without the aid of foundation, and if a swarm could not be hived before July they could not secure stores sufficient to carry them through the winter, consequently, in most cases, were of no value.

They usually commence building their cells near the center of top bar, and circling around it; but few find room to work on the cells, while the balance are idle, or stopping the crevices in the hive with propolis; when empty boxes were put on they worked to the same disadvantage. Man, with his accumulated facilities, lays out the work in the space to be occupied by the brood and honey department of the hives and boxes, and the bees being all permitted to work, as their instinct inclines them to do, the cells spring up as if by magic, and in 24 to 48 hours they begin to deposit brood and honey. Thus the July swarm, that was thought to be of no value, not only sustains itself, but proves a source of revenue to its possessor. Man has not only made the ox, the ass, the horse, and all the subtler elements subservient to his will, but is now utilizing the insect to add to his revenues.

I make a foundation with heavy side wall, 4 feet square to the lb., and submit it to the test of the bees, and find they do not utilize the whole of the wax. I make a foundation with light side wall, and find they are not satis-



fied with it, but wander around and nibble it. I make a foundation with high, sharp, side wall, and, finding them contented therewith, adopt it. I find by inserting fine wire to give strength to the brood comb, I have produced what I call a perfect foundation. For brood comb, say 6 square feet to the lb. Now, I give the screws to the same machine an extra turn and produce a foundation 10 to 14 square feet to the lb., with high, sharp, side walls, that are all utilized in the construction of the cells, and find a delicate foundation that, when used, is acceptable to the consumers of honey. Not that an expert in testing honey may not occasionally detect it, but the general consumer will accept and enjoy it as a luxury.

Sprout Brook, N. Y.

## Letter Drawer.

South Bend, Ind., April 9, 1880.

My 50 colonies of bees wintered without loss, so far. I think some of them are stronger than in the fall; part are in the cellar and part on the summer stands protected. I could not do without the AMERICAN BEE JOURNAL.

A. J. HATFIELD.

Dundee, Ill., April 3, 1880.

I took my 30 colonies of bees from the cellar to-day. They are in splendid condition. I lost but one. The day is lovely; all nature is clad in the habiliments of joy, the birds are filling the air with their notes of music, and why should not man be happy? I never had my bees to come through so strongly before, and with so many young ones. I introduced two of the Pometta Italian queens into my hives on Sept. 18. The hives are full enough to swarm, if it was time for it, and the combs are full of young bees in all stages. I intend to stock my apiary from those two queens. I shall allow one to rear queens, the other drones, to the exclusion of all others. Can I do it? As it is nearly swarming time, I will state my plan of treating bees that are high minded and have exalted notions, those that settle in the top of the tall oaks. In my yard I go through the hive and remove all queen cells but one; and when the clustering is well under way I get my shot gun and put a charge of bird shot into the cluster. In a short time they come back to the hive like doves to the window; a few are sacrificed but the majority are saved. As soon as quiet is restored, I go through the hive again, and if I find the queen uninjured, I

destroy the saved cell. If the queen is injured in the least I destroy her and raise a young one; that generally ends the swarming for the season. I wish but little or no increase.

E. J. GOULD.

[You cannot prevent drone-breeding to some extent among your black bees; but can greatly facilitate drone-rearing, where desired, by placing drone combs in the centre of the brood-chamber and stimulating the colony by night feeding, when the bees will rear the drones preparatory to swarming.—Ed.]

Poplar Bluff, Mo., May 7, 1880.

I extracted 220 gallons of honey last spring from 58 colonies, in about 4 weeks. One of my neighbors found 15 bee trees here last fall and winter; from some trees he obtained 100 lbs. of honey. This is a good locality for bees, but there are few persons here who give them attention. The forests are abundantly spread with flowers from spring till fall. White clover is also plenty.

W. N. CRAVEN.

Northville, Mich., March 28, 1880.

Last season I commenced with 17 colonies of bees. I increased to 35, and obtained 1,400 lbs of honey from white clover and basswood, having none after July 12. I sold 5 colonies, and 1 became queenless in the cellar in the winter and died. The rest are all in good condition. One of my neighbors put 17 colonies into a light cellar, closed up the entrances, and lost all but 2, and cannot think why! He uses box-hives and takes no bee papers. Bees that were properly taken care of in this locality have wintered well.

RANSOM ALLEN.

Richmond, Ind., March 31, 1880.

Last fall, anticipating a mild winter, I departed from my usual custom of wintering my bees in the cellar, and packed on the summer stands, with quilt and sawdust, covering all with a good roof. They wintered without loss, and are in good condition. Some of my neighbors who gave no protection have lost a few, and are feeding to save others. My bees remained quiet in their hives, and when unpacked, bees were flying freely. It made a saving to me in stores. Bees are gathering pollen and breeding strongly. I think the prospect is excellent for a good season and a large crop of honey. Success to the AMERICAN BEE JOURNAL.

M. H. WOLFER.



Wilmington, N. C., April 2, 1880.

I, and I firmly believe 99 out of every 100 of the subscribers of the AMERICAN BEE JOURNAL, have the fullest confidence in its editor's honor and integrity, and his ability to properly conduct the BEE JOURNAL. And we will ever be glad to see the JOURNAL move "onward and upward," as it has been doing ever since my acquaintance with it.

"We have hope that the love of the truth  
Will preside in the bosoms of all,  
So that man, whether old or in youth,  
May speak freely, not fearing to fall."

Our bees are in tip-top order, and the hives crammed full to overflowing with bees. We will have lots of swarms by the middle of this month in this latitude. Don't you wish you were down here in our bright and jolly sunny clime? Yes, I am sure you do. Let's have the next year's meeting of the National Association here in Wilmington.

R. C. TAYLOR.

[The location of the National Convention for 1881 will rest entirely with those present at Cincinnati next fall. If those present think it best to locate the next further South, or East, or West, we shall be satisfied. It should be in a different State every year, we think, to make it the most beneficial to the great body of apiarists. We desire only its permanent good, and have no axe to grind or selfish purpose to serve with it.—ED.]

De Kalb Junction, N. Y., Mar. 30, 1880.

About a year ago I promised my report at the close of the honey season, but failed to give it. We had a good honey season, for a short one, no honey being gathered after July 25. I began the season with 116 colonies, increased them to 210 by natural swarming, and obtained about 8,000 lbs of comb honey, mostly in prize boxes. I sold the bulk of the crop for 19 cts. per lb. Bees in this section are now all in cellars, and will be for some time to come. I do not know what condition my bees are in, for I have not seen them but once since they went into winter quarters, and that was the last of January. They are 20 miles from home in a cellar, and were in fine condition when last seen. We are looking for a poor honey harvest. here the coming season, as there has been but little snow, and for the last two months the ground has been bare, thawing every day and freezing every night, which as a rule kills nearly all the white and Alsike clover, the best sources of honey in this section. About

every third year is a regular bee-killer with those that do not feed their bees when honey fails. Much is said of late about dollar queens. I have paid \$5 several times for queens, yet I have never got one that produced as good workers as those sent me by H. Alley for a dollar. The workers reared from the dollar queens would find honey if it was to be had, and store it in the boxes at once. Another important point in their favor was that they were small eaters while in winter quarters. I do not rear queens to sell at any price, but this is my experience.

IRA BARBER.

Rice County, Minn., March 20, 1880.

In the fall of 1876 I bought 4 colonies of bees for \$40. The next fall I had 400 lbs. of comb honey worth \$100, and 14 swarms worth \$100, the income from these being \$200.

In the fall of 1877 and the next spring I had 18, and in the fall I had 1,100 lbs. of comb honey, worth \$220, and 26 swarms, with the 18 original colonies making 44. The next spring they came out all right, and I sold 22 of them for \$112, making \$332 income from them, and had 22 colonies left.

In the fall of 1879 I had 750 lbs. of comb honey, worth \$135, and I sold \$25 worth of bees and had 50 colonies left, 26 more than I had in the spring, worth \$100; the income of honey and bees being \$260.

Last year I ran them for honey. I have not lost one colony in winter or summer. Who can show a better record? This was all done with the little, despised, black bee, and with nothing but log and box hives. Now, would you advise me to get some frame hives and Italian bees, so that I might lose half of them every winter and gather less honey?

JOSEPH COEAGNE.

[We should never advise a change when doing so well—but where can you find another that has such a regular bonanza as you have? See what a honey-producing country, honey market with high prices, and desirable location, with industrious bees, you report! The like of this can hardly be found anywhere else, and you will do well if you can keep it all to yourself. "Mum's the word," for your benefit.—ED.]

Shelbyville, Tenn., April 10, 1880.

My 36 colonies wintered well, and are now at work in surplus boxes. I had drones on the 1st of April.

J. W. PRICE.

Manteno, Ill., March 8, 1880.

Inclosed please find specimens of spiders that I find quite plenty in and about my bee hives. My attention was first drawn to them by finding the remains of a good many bees on the top of canvas that covers frames of bees. I do not know whether they kill the bees, or feed on those that naturally die. In fine weather they sit on the packing around the hives and sun themselves. They are wonderfully active and hard to catch. I have not noticed any webs about the hives. I keep a few good colonies of bees just for the fun and sweetness of the business. My bees are wintering well. PHILIP P. NELSON.

[The spiders were too much crushed for identification. It is quite possible that they kill the bees, and more likely than that they feed on those already dead. Though I should have little fear of any very serious damage from spiders.—A. J. COOK.]

Bowden, Ga., March 29, 1880.

I am highly pleased with the foundation you sent me, and do not see how I could do without the smoker. I have been transferring my bees into movable frame hives, and have used some of the foundation in full sheets. I have 4 colonies of Italian bees, and I am leaving much drone comb in them nad removing all the drone comb from the blacks, so that I shall get drones from my Italians first, and by doing that hope to have my queens fertilized by pure Italian drones. I am the only person in this section who is giving any attention to bees. I am determined to see if there is any money in them. I have been reading the AMERICAN BEE JOURNAL for 4 years, and I think I have been well paid for my subscription money. I would not be without it and try to keep bees. Bees are storing honey every pleasant day, but we have had too much rain. H. M. WILLIAMS, M. D.

Chebanse, Ill., March 29, 1880.

I put into winter quarters 33 colonies of bees about the middle of November, having prepared a room for them in the basement of my barn. They were not moved or disturbed until Feb. 25, except to pass through the room carefully to examine them, about once each week. They became uneasy, and said as plainly as they could that they wanted to see daylight and have a fly. I moved them to their summer stands after night, and awaited anxiously for the results next morning. Having neglected when I put

them away in the fall to number the hives and stands, I expected to see much confusion among them. Before 10 o'clock they were flying thickly from every hive, assuring me that all were alive and apparently strong. Every bee seemed to know his home, and all are doing nicely. I have never had bees use so little honey, and am fully persuaded that a good, dry, dark room, free from frost and well ventilated, is the place in which to winter bees. I think fully two-thirds of the last year's swarms in this part of the country starved during the winter, many of them early. REUBEN HAVENS.

Clarksville, N. Y., April 1, 1880.

My bees are in the cellar and are doing well. We are having cold weather now. We had nearly 12 inches of snow on March 27, and it goes off slowly; it will take 3 or 4 days yet to thaw it. I have 146 colonies. A. SNYDER.

Warsaw, Ont., March 19, 1880.

I have just finished moving my bees to a new apiary; they are all out strong to-day. I wintered out of doors; they have had several flights since the 12th of February—a very unusual thing for this locality. GEO. GARLICK.

Union City, Ind., Feb. 26, 1880.

I took my bees out of the cellar to-day. They are now gathering pollen from the maples. This is something I never before saw in this month. I wintered in a sawdust house with walls 12 inches thick, without loss. I lost  $\frac{3}{4}$  of them in the same house last winter. My bees yielded about 75 lbs. of honey per colony last season. I find the BEE JOURNAL indispensable. A. HOKE.

Rome, Ga., March 17, 1880.

The winter, if such it may be called, has been one of the mildest for many years, with scarcely a day that the bees were not flying. They consumed more honey than if the weather had been cool. By Feb. 20 they were breeding profusely, and were about ready to swarm by March 15. Plums, peaches and cherries blossomed about the end of Feb., but before the bees could gather the honey in them, it commenced to rain, continuing ever since, day and night. The river is now 30 feet above low water mark, and is still rising. Many weak colonies with brood, are in bad condition, and the result will be very disastrous. The prospect for an early spring is good although the swarming season has been checked nearly a month. A. F. MOON.



Owensville, O., April 9, 1880.

My bees have wintered well, and consumed but little of their stores. The weather has been cool since March 1; freezing some nights. The bees are not breeding up very fast. The prospect for a good yield of honey I think is good.

J. B. RAPP.

Chester, S. C., March 24, 1880.

My bees are doing well—the fruit is beginning to bloom. Here we have no spring dwindling. Bees gather no honey in July and August here. I cannot do without the assistance of the BEE JOURNAL. I think more and more of it, every number I get.

H. S. HARDIN.

Seymour, Ind., Jan. 1, 1880.

According to previous arrangement. I now report on my trial apiary. Last spring I purchased queens of the following persons, at dates named, and number them as they were received:

1. Rev. A. Salisbury & Hays, May 7, 1879.
2. J. M. Brooks & Bro., May 9, 1879.
3. A. F. Moon, June 6, 1879.
4. W. P. Henderson, June 14, 1879.
5. Aaron Benedict, June 24, 1879.

They were all successfully introduced, and in due time sent out their offspring, and, upon examination, I found I had bees of all colors, from a black to a golden red.

No. 1 was a fine queen, very prolific, workers a light leather color, three distinct bands; drones medium to dark.

No. 2 was a fine queen, very prolific, of a bright golden color; drones of a golden color, bands almost as well marked as the workers, altogether the finest drones I ever saw.

No. 3, fine looking queen, but her offspring was from a black to a bright Italian. I pronounce her a hybrid.

No. 4, workers leather color, bands distinct; drones dark.

No. 5, received a fine queen in the cool weather in May with less than a dozen bees with her. She was chilled. I caged her and placed her in the midst of a colony of bees, but in a short time she was dead. I wrote Mr. Benedict, and he sent me another on June 24; she lived only four weeks, and I only saw her workers, which were dark leather color, but had the three bands.

In this report I have said nothing about prices paid for them; have only to say that they cost me from \$2.50 to \$5 each.

I ordered a queen from H. A. Burch & Co., but as they did not supply it till late in the season I received my money back.

C. H. HANCOCK.

Paris, Ill., April 5, 1880.

We organized a bee-keepers' Convention here on the 27th ult.; meet again on May 1st.

J. A. NELSON.

Glasgow, Scotland, March 26, 1880.

Bees have wintered remarkably well all through Great Britain and Ireland. Not more than 1 in 50 colonies have died. Reports from all quarters state that the bees are now in first class condition, but will need a little spring feeding.

JOHN D. HUTCHINSON.

Austin, Minn., April 3, 1880.

My bees commenced dying last fall and I have lost 15 colonies—cause, unsealed, thin, sour honey—can extract easily with my hands. Bees kept dying all winter until dwindled out, and will continue so until the stuff is removed from the combs, when health is restored. The honey was gathered in a wet season. Symptoms: Bees bloated, dragging themselves around with wings in motion; others bloated abdomen with shining black body and shrunken head. I could have prevented the loss had I had the experience. I have now both loss and experience.

FRANK A. TICKNOR.

Byron, Ill., March 23, 1880.

I put 25 colonies into winter quarters last fall, have lost one by mice. Part were in the cellar, and part were packed in straw; the latter are breeding the most rapidly now, but suffered most with mice. In future I shall place wire cloth above the frames to prevent the entrance of mice. The queen I procured from the BEE JOURNAL apiary is laying vigorously, though in a weak colony. I am feeding about a pint of syrup per day.

W. J. LONGSDON.

New London, Ind., April 8, 1880.

I have 32 colonies of bees, in good condition. I put them in the cellar about Nov. 15, and took them out during the warm weather in January for about two weeks; I then put them back and let them stay until Feb. 28, when I put them out again. On that afternoon they brought in pollen, and they have been at it ever since. I lost none this winter; all very strong, with very few dead bees about the hives. Last winter I saved 18 out of 40, and these were very weak. I increased to 32, mostly by natural swarming, and obtained about 300 lbs. box honey. Things now look favorable for a good season. The fruit trees are full of buds, and we have plenty of bees to gather the honey if any comes.

C. A. JONES.



## Business Matters.

### OUR TERMS OF SUBSCRIPTION,

PAYABLE STRICTLY IN ADVANCE.

Single subscription, one year.....	\$1.50
Two subscriptions, " " " " " "	2.50
Three subscriptions, " " " " " "	3.50
Four subscriptions, " " " " " "	4.50
Five or more, " " " " " " each,	1.00

Advertisements will be inserted at the rate of 20 cents per line of *Agate* space, for each insertion. A line will contain about **eight words**; fourteen lines will occupy an inch of space. Advertisements must be received by the 20th, to insure insertion. Special Notices 50 cents per line.

**☞** We intend only to advertise for reliable dealers, who expect to fulfill all their advertised promises. Cases of *real* imposition will be exposed.

Remit by express, money-order, registered letter or New York or Chicago drafts, payable to our order. *Do not send checks on local banks, for such cost us 25 cents each for collecting.*

**THOMAS G. NEWMAN & SON,**

972 & 974 West Madison St. CHICAGO, ILL.

### To Correspondents.

Our Illustrated Catalogue and Price List will be sent free, on application.

When changing a post-office address, mention the old address as well as the new one.

Constitutions and By-Laws, for local Associations, \$2.00 per 100. The name of the Association printed in the blanks for 50 cents extra.

We do not send goods by C. O. D., unless sufficient money is sent with the order to pay express charges both ways, in case not taken from express office.

Strangers wishing to visit our office and Museum of Implements for the Apiary, should take the Madison street-cars (going west). They pass our door.

In consequence of the dearth of small currency in the country, we will receive either **1, 2 or 3 cent stamps**, for anything desired from this office. We cannot use Canadian or other foreign stamps.

We will send a tested Italian Queen to any one sending us **FIVE** subscribers to the *AMERICAN BEE JOURNAL* with \$7.50. The premium Queens will in every case be tested, but not sent till after July 1st.

Club names for the *BEE JOURNAL* may be sent to as many post offices as there are names in the club. Additions can be made to clubs at any time at the same rate. Specimen copies, Posters, and Illustrated Price List sent free upon application, for canvassing.

Seeds or samples of merchandise can be mailed for one cent per ounce. Printed matter one cent for every two ounces. These must be tied up; if pasted, they are subject to letter postage. *Don't send small packages by express, that can just as well be sent by mail.*

Our answer to all who ask credit is this: We sell on **small** margins, and cannot afford to take the risks of doing a credit business. If we did such a business, we should be obliged to add at least 10 to 20 per cent. more to our prices, to make up for those who would never pay, and to pay the expenses of keeping book-accounts with our customers—this we know our **Cash** customers would not think to their advantage.—This rule we must make general in order not to do injustice to any one. The cash system gives all the advantage to cash customers, while the credit system works to their injury. In justice to all we must therefore require **Cash with the order.**

### Bingham's Smoker Corner.

"Whew! 12,000! whew!" Patent Bingham smokers sold. All bellows smoker patents subject to Bingham's original and first patents.

"Draft," not blast, the question! Most of the old smoker makers have tried to get permission to use direct-draft in smokers, but have invariably been refused.

Without substantially my patent draft, all smokers now made would be worthless, while with it, substantially, and for the purposes of draft, all are infringements.

Our patents reduced the cost of smokers to bee-keepers one-third, increased their durability and convenience beyond calculation or competition, and secured beyond question or cavil their title and credit to the original inventor. Four years have passed, and many worthless infringements have been sold to innocent parties, but no one except Bingham has improved on the original patent Bingham smoker. Our patents, granted and pending, will enable us to make and sell the best smokers from fourteen to seventeen years longer, and we expect to do it. Original and first patents pay, and are safe to sell or use.

T. F. BINGHAM.

Monmouth, Ill., April 12, 1880.

The large smoker came duly. Have tried it, and like your improvements very much; it is now all that could apparently be desired.

T. G. MCGAW.

Reading, Pa., April 7, 1880.

I received all safe and sound Bingham's Little Wonder Smoker, and indeed it is a wonder how I ever did without it.

LEE ESENHOWER.

**☞** A Convention of the Southern Michigan Bee-keepers' Association will be held at Battle Creek, Mich., on Wednesday, May 5th, at 10 a. m. B. SALISBURY, Sec'y.

**☞** The bee-keepers of Northern New York will meet to organize an Association on the 12th of May, 1880, at Glen's Falls, N.Y. J. H. MARTIN.

**☞** The Central Kentucky Bee-keepers' Association will meet at Lexington, Ky., on Tuesday and Wednesday, May 5th and 6th, at 10 o'clock a. m. Chas. F. Muth, Esq., will be present to deliver an essay on some interesting topic in bee-culture.

W. WILLIAMSON, Sec'y.

**☞** The South-western Wisconsin Bee-keepers' Association will meet on May 18, 1880, at the residence of E. France, in Platteville, Wis., at 10 o'clock a. m., sharp. The following interesting papers will be read and discussed: Bee Forage, by H. C. Gleason; Italian Bees, by H. Gillmore; Black Bees, by E. France; Marketing Honey, by R. D. Wilson; Natural Swarming, by Mr. Woodberry; Artificial Swarming, by E. France; Transferring, by E. France; Comb and Extracted Honey, by N. France. All persons interested are invited to attend.

NEWELL FRANCE, Sec'y.

## Honey & Beeswax.

[We will insert free of charge, under this heading, the names and addresses of persons having honey and wax to sell, giving address, description and prices; all to occupy not more than three lines.—ED.]

### Honey and Beeswax Market.

BUYERS' QUOTATIONS.

#### CHICAGO.

**HONEY.**—Light honey, in single-comb sections, 18@20c.; when with more than one comb in a box, 2c. per lb. less. Extracted, 8@9c.  
**BEESWAX.**—Prime choice yellow, 22@25c.; darker grades, 15@18c.

#### NEW YORK.

**HONEY.**—Best white, in single-comb sections, 18@22c. Larger boxes, 2c. per lb. less. Extracted, 9@10c.  
**BEESWAX.**—Prime quality, 25@27c.

#### CINCINNATI.

**HONEY.**—White, in single-comb sections, 18@20c. Extracted sells readily—8@9c. C. F. MUTH.

#### SAN FRANCISCO.

**HONEY.**—Comb, 14@16c.; Extracted, 7@9c. F. D.  
**BEESWAX.**—22@23c. STEARNS & SMITH.

## Local Convention Directory.

1880. *Time and Place of Meeting.*

- May 4.—N. W. Ill. & S. W. Wis., at Pecatonica, Ill.  
 Jonathan Stewart, Sec., Rock City, Ill.  
 4.—Northeastern Wisconsin, at Waupun, Wis.  
 F. Dunham, Sec., Deperre, Wis.  
 4, 5.—Central Kentucky, at Lexington, Ky.  
 Wm. Williamson, Sec., Lexington, Ky.  
 5.—Southern Michigan, at Battle Creek, Mich.  
 B. Salisbury, Sec., Battle Creek, Mich.  
 12.—Northern New York, at Glen's Falls, N. Y.  
 J. H. Martin, Sec., Hartford, N. Y.  
 18.—Rock River Valley, at Davis Junction, Ill.  
 18.—S. W. Wisconsin, at Platteville, Wis.  
 N. France, Sec., Platteville, Wis.  
 25.—Northwestern Union, at Hastings, Minn.  
 National, at Cincinnati, Ohio.  
 Oct. —Northern Michigan, at Carson City, Mich.  
 14.—Southern Kentucky, at Louisville, Ky.  
 Dec. 8.—Michigan State, at Lansing, Mich.  
 1881.  
 Feb. 2.—Northeastern, at Rome, N. Y.

### GIVEN'S FOUNDATION PRESS.

From \$15.00 to \$40.00.

Foundation in wired frames a success. Those wishing a sample of our new foundation and a descriptive catalogue, please send your address on a postal. If prices on Copper Dies are wanted, send inside size of your frames.

D. S. GIVEN, Hoopston, Ill.

**Simplicity, Chaff and Story-and-Half Hives, SECTIONS, FRAMES, DUNHAM FOUNDATION, Etc., CHEAP.**

Workmanship superior. Manufactured by MERRIAM & FALCONER, Jamestown, N. Y.

### BEES FOR SALE.

I will sell good, full colonies of hybrid bees in May at \$5.00 each; in June and July, with dollar queen, at \$4.00 each; very strong 4-comb nuclei at \$3.00 each, all in good 8-comb hives; combs all 13x11 outside. I will sell 5 to 50 colonies, with dollar queen, in 8-comb Langstroth hives, at \$5.00 each. Safe arrival and satisfaction guaranteed. R. S. BECKTELL, 5-1t New Buffalo, Berrien Co., Mich.

## Worker Combs in Frames,

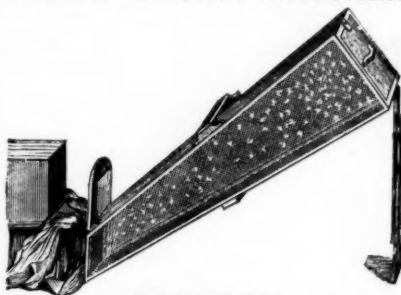
10 1/4 x 17 1/4 inches, in good condition, at 25c. each. Send cash and orders to

F. W. CHAPMAN, Morrison, Ill.

## J. W. BAILEY,

Inventor and Sole Manufacturer of the

## BAILEY SWARM CATCHER.



Patent applied for.

In presenting the same, we are happy in knowing by our own experience, and the statements of others, that we are offering an implement that no one who keeps bees can afford to do without. Because without it your bees will often swarm into tall trees where it is very difficult to get them. In its use there will be no more chasing them across the fields, no more defacing choice trees and shrubs, no more smoking them from difficult places, no more swarms going together, and no more clipping the wings of the queens to compel them to stay in the hive, for the Bailey Swarm Catcher can be placed at any hive, and never fails to catch bees when swarming.

Should four swarms issue at the same time, we feel safe in saying that one person can adjust four catchers in a single minute, and thus keep each swarm separate.

A child ten years old can catch your bees, and they can be hived at pleasure.

As soon as you see the bees beginning to swarm, then it is brought into use, and the bees that have escaped will alight upon the outside, and try to get in.

The Swarm Catcher is covered with wire cloth, and can be set at any angle, and by its use, and a queen cage, a swarm can be compelled to stay in any hive.

One Swarm Catcher, boxed and delivered at the cars, \$6.00. Two or more, \$5.00 each.

Full directions sent with each Catcher.

At Present will ship none to Indiana or Kentucky, as those States are being canvassed.

State and County Rights for sale.

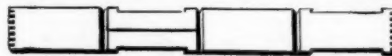
Write your name, Post Office, County and State plain, and send by Postal Money Order, Draft or Registered Letter.

J. W. BAILEY,

Box 408, Ripon, Wis.

5-6

## DECISION



This One-Piece Section, heretofore called the LEWIS SECTION, has been involved in an interference in the Patent Office, at Washington, between James Forncrook and Lewis & Parks, and the Commissioner decided Priority of Invention in favor of James Forncrook. Send for Price List.

JAMES FORNCROOK & CO.

Watertown, Wis., May 1, 1880.

### ALBINO AND ITALIAN QUEENS,

Full Colonies and Nuclei, at reasonable Prices.—I am prepared to furnish early Queens—Pure Albino and Italian Queens—bred from Imported and select home-bred mothers. Warranted pure and safe arrival guaranteed. Also Hives and Apian Supplies generally. Send for Price List.

Address, 1tp

S. VALENTINE, Double Pipe Creek, Carroll Co., Md.

## Tested & Imported Queens

DUNHAM FOUNDATION,

## MODEST BEE HIVES,

SECTION BOXES, &c.,

TO BE HAD OF

## J. OATMAN & SONS,

DUNDEE, KANE CO., ILL.

N. B.—We shall hereafter rear **NO DOLLAR QUEENS**, but will confine our Queen-rearing to producing **FINEST TESTED QUEENS**, bred for **BUSINESS**. Please take notice. Write for Price List.

**J. OATMAN & SONS,**

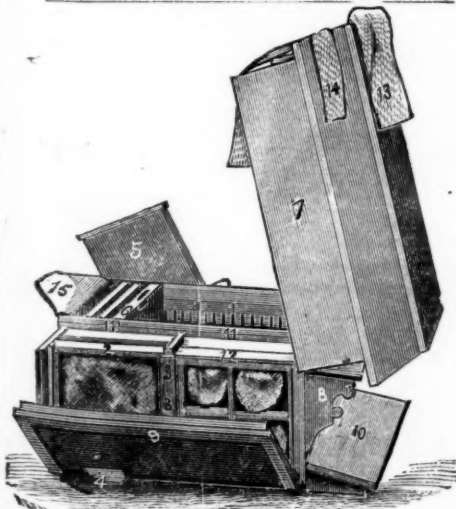
5-7

Dundee, Kane Co., Ill.

## Italian Queens.

I shall rear **PURE ITALIAN QUEENS**, during the season, and will sell them at reasonable prices.

**JULIUS BEYER, Butlerville, Ind.**



### BEEES AND SUPPLIES.

Send for Circular and Price List to **O. H. TOWNSEND**, manufacturer of **THE CHALLENGE BEE HIVE**, adapted to the use of the American, the Gallop and the Roop frames. Italian bees, nuclei, and queens from imported stock. Apian stock in general. Address, **O. H. TOWNSEND**, Hubbardston, Ionia Co., Mich.

## H. A. BURCH & CO.

Don't advertise much, but they carry a full line of **BEE-KEEPERS' SUPPLIES**, which, for quality and price, make their customers happy. Competent judges say that their

### COMB FOUNDATION

is away ahead of all competitors. If you ever feed bees, try a

### HEDDON FEEDER,

the latest, and by far the best, invention of its class; we are the sole manufacturers for 1880. For

### DOLLAR QUEENS,

from best strains of Italian blood, we shall lead the trade, and you should see that your orders are sent in early. The choicest of

### TESTED AND IMPORTED

queens always on hand; if you want splendid honey gathering stock, try our queens. A good supply of

### FULL COLONIES,

at prices that will please you, if you want the **Best Bees**. Finally, if you want the neatest Apian Catalogue printed in any land or language, send your name on a postal card to

## H. A. BURCH & CO., SOUTH HAVEN, MICH.

### CHEAPER STILL.

Yet on hand, **25 Colonies** in good condition. As I cannot find time to take care of them will sell for **\$4.50 each**. Good movable comb hives.

5p

**E. A. GASTMAN, Decatur, Ill.**

**Salisbury's "Wonder" Chaff Hives** and improved Simplicity hives, wonderful for their simplicity and cheapness; section boxes, comb foundation, smokers, extractors, Italian queens, etc. Send for Circular. **B. SALISBURY & CO., Battle Creek, Mich.**

## CHEAP HIVES, AND CHEAP SECTIONS.

The **BEST BEE HIVES**, HONEY BOXES, SECTIONS, SECTION CASES, FRAMES, Etc., for the **Least Money**. Manufacturers of the **LEWIS SECTIONS**, all in one piece—the finest Sections in the world—and we make them perfect.

**Notice.**—There is no patent on the above section, and the Examiner of Interferences of the Patent Office has adjudged the same unpatentable; so, any one has an undisputed right to manufacture, sell or use the same. Do not be misled by parties claiming a patent on the same.

Send for Price-List.

**LEWIS & PARKS, Watertown, Wis.**

## WILLIS D. PARKER,

Manufacturer of Watch & Jewelers' Boxes,

## BEE HIVES, SECTION HONEY BOXES,

And other Apian Supplies,

**DEFIANCE, OHIO.**

Send for Circular and Price List.

3-14

*CININNATI, O.,*

## MUTH'S ALL-METAL HONEY EXTRACTOR

AND UNCAPPING KNIFE.

**Glass Honey Jars and Tin Buckets, Bee Vells, Gloves, and a general assortment of Bee-Keepers' Supplies.**

**ALSIKE CLOVER.**

and a variety of Field and Garden Seeds, etc. For further particulars address,

CHAS. F. MUTH.

4-12 976 and 978 Central Ave., Cincinnati, Ohio.

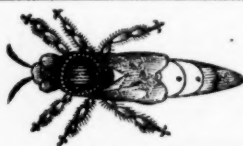
and Section Boxes, at reasonable rates for 1880. Extractors from \$10.00 to \$12.00. Prize Boxes, \$4.00 to \$5.00 per 1,000. Address, **R. R. MURPHY,**  
4-6 Garden Plain, Whiteside Co., Ill.

# Comb Foundation Machine.

No lost motion in the gearing—may be turned either way. The machine is warranted to do the work like the sample. The rollers are made of the best type metal. The prices are as follows :

No. 1—Rollers 12 inches long, 4 in. diameter....	\$75 00
“ 2 “ 12 “ “ 2 “ .....	40 00
“ 3 “ 9 “ “ 2 “ .....	25 00
“ 4 “ 6 “ “ 2 “ .....	15 00

**Sample of Foundation made on this machine free.  
For sale at the office of the American Bee Journal.  
3tf C. OLM, Fond du Lac, Wis. •**



1880.  1880.


**REV. A. SALISBURY.**

**CAMARGO, ILL.,**

**Pure Italian Queens, Bees, Foundation Combs,  
Honey Extractors, Dunham Foundation Machines,  
&c. Send for circular.** 3-8

## Hale's Price-List.

Send for my price-list of Bees, Queens, Nuclei, &c.,  
for 1880. Early Queens a specialty. Address,  
2-11 E. W. HALE, Wirt C. H., W. Va.

 **Price List for 1880**, of Italian Bees, Queens, 4 frame Nuclei, and Apiarian Supplies, **Sent Free.** Address, **J. H. BROWN**, Light Street, Col. Co., Pa.

## BEES FOR 1880.

**We will furnish Full Colonies, Nuclei and Queens  
CHEAP. Satisfaction guaranteed. For circulars  
address, S. D. McLEAN & SON,  
2-7 Culleoka, Maury County, Tenn.**

# DADANT & SON

## COLONIES.

With Imported Tested Italian Queen .....	\$13 00
" Home-bred " " .....	9 00

Hybrids or blacks in movable-frame or box hives.  
Have wintered over

**100 IMPORTED QUEENS.**

and will continue to receive two shipments every month, from May to September.

**Root and Dunham Foundation.**


The purest and brightest yellow foundation made. Hives, Extractors, Uncapping Cans, Veils, Smokers, Pails, Jars, Knives, etc. Send your name on a postal card for circular and sample of foundation free.

**CHAS. DADANT & SON.**

3-8 Hamilton, Hancock Co., Ill.

## For Sale Cheap.

## 200 Colonies of Italian Bees.

Having over 450 Colonies of Italian Bees, I will sell 200 in lots of 25, 50, 100 or 200 at \$5.00 each, delivered on board of any Mississippi river steamboat. All the Queens are daughters of Imported Mothers, of different parts of Italy.  Dollar and Tested Queens now ready to ship. Comb Foundation, Apian-ri Supplies, &c. Address,  
3-4f PAUL L. VIALON, Bayou Goula, La.

1880.— —1880.

## Italian Queens, Nuclei, &c.

Single Queen, Tested.....	\$2.00
"    Untested (laying).....	1.00

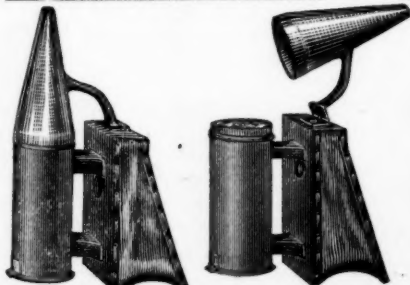
By the dozen, 10 per cent. off of above prices.  
Queens sent by mail and postage prepaid.

3 frame Nucleus, Untested Queen.....	\$3.00
2 frame Nucleus, Untested Queen.....	2.50
1 frame Nucleus, Untested Queen.....	2.00
8 frame Colony, Untested Queen.....	6.00

Sent by Express. Send money by P. O. Order or Registered Letter. Address,

3-8 **W. F. HENDERSON,**  
Murfreesboro, Tenn.

**EVERETT'S** Honey Extractors and Everett Langstroth Hives a specialty. We challenge competition in price and quality. Our circular and price list of apiarian supplies, Italian Bees and high-class poultry sent free. **EVERETT BROS.,** Toledo, O.



**Scovell's Eureka Cold-Blast Bee Smoker is Boss.**—It is a cold-blast or a hot-blast, both at once or separately, at the will of the operator. It is the only cold-blast smoker on the market that has no tubes or other complicated machinery in the fire barrel to interfere with filling or cleaning. Large size bellows  $5\frac{1}{2} \times 8\frac{1}{2}$  inches; fire barrel,  $2\frac{1}{2}$  inches.

Price.....**\$1.00**; By mail.....**\$1.25.**

Send for illustrated descriptive catalogue and price list of hives, implements and supplies used in bee culture. Address, **SCOVELL & ANDERSON**, Columbus, Cherokee County, Kansas. 4-8



